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REPORT ON THE PUBLIC WATER SUPPLY OF DELAWARE, OHIO.

REPORT OF AN INVESTIGATION MADE BY THE ENGINEERING DIVISION OF THE OHIO STATE DEPARTMENT OF HEALTH.

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INTRODUCTORY STATEMENT.

Under the law of Ohio providing for the correction of stream pollution and the improvement of impure and unsafe public water supplies,[1] upon complaint of a board of health of a city or village, or 10 per cent of the electors thereof, that the public water supply is impure and dangerous to health, the State commissioner of health is required to investigate the conditions complained of. If he finds the water supply to be impure and dangerous to health and that it is impracticable sufficiently to improve it by removing the source of pollution, or that the supply is being rendered impure by improper construction or inadequate size of water-purification works, he is required to notify such city, or the corporation owning or operating such water supply or water works, of his findings and of the time and place when and where a hearing may be had with the public health council.

If the public health council finds that the water supply is unsafe, the commissioner of health notifies the mayor or other officials, or officers of the corporation, to make the necessary changes to render it safe. If the findings or order of the commissioner of health are not acceptable to the city or corporation, referees are chosen to investigate, and they may affirm, reject, or modify the findings or order of the commissioner of health. An order as made by the commissioner of health or as approved or modified by the referees may be reversed, vacated, or modified by the supreme court if the court is of the opinion that such order was unlawful or unreasonable.

The article here presented is a report that was prepared to be presented at the hearing before the public health council of the State

[1] See page 1945.

department of health in regard to the safety of the public water supply and the necessity for the issuance of an order. It is believed that this report will be of especial interest and importance to waterworks officials and health authorities, in view (1) of the finding of the failure of chlorination and (2) of the possible influence of hog cholera on the watershed above the intake upon the failure of chlorination and upon the epidemic of water-borne disease.

Acting upon a resolution of the Delaware District Board of Health, representatives of the State department of health made an investigation of the public water supply of Delaware, Ohio, on December 13, 1921. This water supply had been the subject of several investigations during the preceding three years; two had recently been made by the State department of health, one on November 17 and another on December 1, 1921.

The city of Delaware is centrally located in Delaware County, of which it is the county seat. The Olentangy River passes through the center of the city. The population according to the census of 1920 is 8,756. Delaware is a typical college community, and for the past 20 years the population has varied but little. Ohio Wesleyan University is located there, and the activities of the people in the city are closely associated with those of the college.

Municipal improvements comprise a very complete system of paved streets throughout the built-up sections; electric light and power, furnished by a private company; a public water supply system, owned and operated by the Delaware Water Co.; a fairly good sewerage system, designed and constructed on the separate plan and originally having a sewage treatment plant for disposal of the sanitary sewage. In recent years the treatment plant has been overtaxed, neglected, and practically abandoned.

SOURCE OF WATER SUPPLY.

The Delaware Water Co. was incorporated in 1888, and the water works were constructed and placed in operation the following year. The works are located three miles north of the city, on a tract of land bordering the Olentangy River. The original source of supply consisted of a dug well with a connecting infiltration gallery and an emergency intake at the end of the gallery extending into the Olentangy River. The soil formations in this vicinity consist of glacial deposits of about 25 feet in depth, overlying the bedrock of limestone. The sand and gravel just above the bedrock afford a limited supply of ground water.

As early as 1895 the records indicate the definite use of the emergency intake on account of the inadequate yield of the ground water

from the dug well and infiltration gallery. At this time typhoid fever was suspected as having been caused by the use of the river water. In 1896 the first attempt was made to procure a deep well supply and one well was drilled. In 1905 the public water supply was again suspected of being the cause of a typhoid fever epidemic, on account of the use of the river water through the emergency intake. Soon thereafter a standpipe was built on the distributing system to afford better storage of ground water; and in 1907, four additional deep wells were drilled. In 1908 and 1909, the water company began the practice of flooding the land adjacent to the well system and gallery and also added 13 tubular wells in the gravel deposits along the Olentangy River bank. Additional wells were installed in 1912, 1914, and 1920.

The existence of the emergency intake and the suspicion of unsatisfactory water supply led the water company to install chlorine disinfection devices in 1917. Since that date all water supplied to the city has been chlorinated in varying quantities and record kept of the amount of chlorine used and the amount of water treated. The use of Olentangy River for flooding land adjacent to the wells was made the subject of a report by the State department of health on October 11, 1917. Since that date, river water has been used directly through the emergency intake for a period of 15 days in January and February, 1918; at no time during 1919; and almost continuously from January 8, 1920, up to the time of this report, except for short periods when the quantity of ground water from the well system seemed to be adequate.

The Olentangy River watershed above Delaware has one city and 13 towns, with a total urban population of about 12,500. The drainage area above the waterworks intake is 383.8 square miles. The urban density of population for that portion of the area above the intake is about 33 per square mile. Seven of the communities are incorporated and only two have public water supply systems. The city of Galion has a population of 7,374 and the village of Mount Gilead a population of 1,837. Each of these communities has a sewerage system and a sewage treatment plant. Galion is 46 miles upstream, and Mount Gilead 25 miles upstream from the waterworks intake. There are 4 communities within 10 miles of the intake, the populations ranging from 116 to 344; but at no one of these is there a public water supply or sewerage system.

EXISTING WATERWORKS.

At the time of this investigation the Delaware waterworks consisted of the following: A source of supply comprising a system of drilled wells, a dug well and infiltration gallery, and an emergency intake into Olentangy River connecting into the infiltration gallery;

a pumping station adjacent to the well field and housing three high-service pumps; a 235,000-gallon standpipe located directly on the main to the city, at a point one-fourth mile from the pumping station; and several miles of distributing system mains serving practically the entire city.

The well system includes 25 drilled wells, 4 of which extend to a depth of over 225 feet, 1 is about 150 feet in depth, 1 is 92 feet in depth, and the remaining 19 are shallow tubular wells of about 25 feet in depth. All of the wells are cased down to the rock. The most recent well to be constructed was drilled in 1920 and is cased off at 150-foot depth. At the present time it supplies most of the water derived entirely from well sources.

The large dug well, infiltration gallery, and emergency river intake represent the original water supply development and still remain in use. The dug well is 30 feet in diameter by 28 feet deep, is finished with stone walls without mortar joints, and has a concrete slab top covered with earth. Connecting to the dug well is an infiltration gallery 4 feet high by 6 feet wide, also constructed of loose stone and having a stone slab cover. The gallery is 293 feet long. It is parallel with and approximately 100 feet from the bank of the river. These two structures are built in excavation for about 3 feet into the bedrock.

Located almost immediately over the infiltration gallery and some of the wells there were formerly five land filters. These so-called natural filters were constructed by stripping the soil to make embankments in order to subdivide the area into filtering units. In an attempt to force the yield of the wells still further, there was constructed in 1920 a vertical filter wall 26 feet in width, consisting of fine sand and located between the dug well and the land filters. Both of these schemes were definitely abandoned in the fall of 1920.

The pumping equipment consists of two high-duty Deane duplex pumps and one high-duty Knowlson and Kelly pump. The suction connections and valve arrangements are such that water may be pumped from the dug well and gallery alone or from the drilled well system alone or from the two together. At the present time water is being taken from the Olentangy River through the emergency intake, infiltration gallery, and dug well almost continuously. It is the practice to operate the pumps according to a certain predetermined maximum vacuum, and if the ground water available from the drilled well system is not adequate to make easy pumping, water is drawn from the partially open valve from the dug well, infiltration gallery, and river intake systems.

Disinfection equipment is installed in the pump station in a special partitioned space in the engine room. This equipment consists of a Wallace & Tiernan chlorinator of the M. S. B. manually controlled

type, capable of applying quantities of chlorine varying from 5 pounds per day up to any desired amount. To assist in the accurate treatment of the water pumped, a Venturi meter has been installed upon the main discharge line from the plant. Suitable indicating and recording devices register the amount of water being pumped and the chlorine being applied.

QUALITY OF WATER SUPPLY.

The public water supply of Delaware was first chlorinated on May 3, 1917. Since that time continuous chlorination of all water pumped has taken place. Regular reports of operation are submitted to the State department of health, showing the performance of the chlorination plant. The information submitted includes data upon the analyses of the treated water as shown by weekly samples analyzed by the consulting analyst for the water company.

In November 1920, the Delaware Water Co. replaced the original chlorinator with a new and larger type of installation (the description of which is given above). The change was made necessary on account of the limitation in maximum quantity of chlorine that could be applied by the old machine. The consulting analyst had reported occasional poor results, and the limited capacity of the machine was blamed for the inefficient disinfection of the water supply.

Analytical studies of the disinfection of the public water supply made by the State department of health were begun February 19, 1918, just after river water had been used through the direct intake. The results of these studies showed unsatisfactory disinfection of the water. On March 18, 1918, the survey made by the State department of health showed the water to be of satisfactory sanitary quality. No use of river water had been made during the interval. During 1919, river water was not used, and no sampling of the water by this department was undertaken. Reports of the consulting analyst for the Delaware Water Co. indicated satisfactory water during that year. In 1920, samples were collected by representatives of the department on four different occasions, and each time the study represented river water in combination with certain amount of well water, the combined waters being treated by the disinfection process. The results were uniformly poor, showing the disinfection to be not entirely satisfactory.

In 1921, samples were collected on two different occasions, only one of which was following the use of the Olentangy River water. The results of samples collected, particularly on November 28, indicate that the water was not entirely satisfactory from a sanitary standpoint, in spite of continuous excessive chlorination, varying between one and two parts per million. Presence of turbidity was noted in all of the

tap samples collected November 28, on account of the flood conditions of Olentangy River. On December 13 the river was not being used as a source of supply, and, accordingly, the results of analyses of samples collected on that date indicate fairly satisfactory disinfection of the water supply.

The citizens of Delaware complained regarding the tastes resulting from excessive chlorination throughout the year 1921, and it is, therefore, evident that the company had been making the attempt to disinfect the water in a manner to make it safe. There have been no interruptions in the chlorine treatment; but, nevertheless, numerous tests made by the consulting analyst have showed unsatisfactory results in the Delaware tap water during 1921. The tests made by the State department of health on November 28 check the poor results obtained by the consulting analyst. It is apparent, therefore, that disinfection of the combined river water and well water has failed.

OUTBREAK OF ENTERITIS.

During October and November, 1921, an extensive outbreak of intestinal disease occurred in the city of Delaware. This disturbance was particularly pronounced about the middle of November. The division of communicable diseases made investigation of approximately 743 cases of suspected illness and reported 373 of these definitely to be enteritis. The conclusion as to the responsibility for the epidemic was that the public water supply was to blame. This conclusion was reached after a careful epidemiological study of the cases both positive and suspected.

Coincident with the outbreak of enteritis came the steady rains of the autumn season of the year, resulting in turbid water of probably highly polluted character flowing in the Olentangy River. During this interval, river water was being used as a source of supply variously estimated at from 25 per cent to 75 per cent of the whole supply pumped at the water works. Samples of the city tap water taken November 28 indicated conclusively that chlorine disinfection of the water had failed.

An inspection of watershed conditions above the Delaware water works intake on December 13 revealed the fact that three farms within 7 miles of the intake had experienced an epidemic of hog cholera, resulting in the death of about 40 animals between October 1 and December 13. It developed that proper disposition had not been made of some of these animals, and it certainly seemed probable that the character of run-off in the river was seriously affected by the bacterial pollution resulting from the cholera epidemic among the hogs.

TYPHOID FEVER DATA.

The city of Delaware has experienced rather frequent occurrences of typhoid fever during the past two decades. The public water supply has been suspected as being the cause of most of the instances. Previous to the installation of the chlorine disinfection devices in May, 1917, the average typhoid death rate for 9 years was 32.1 per hundred thousand. For the four years following the installation of the water disinfection devices, the typhoid death rate has averaged 11.3 per hundred thousand. A similar reduction in the case rate is indicated.

It is pertinent to note that all of the cases of typhoid fever that occurred in Delaware in 1921 occurred in the period between September 1 and December 3, coincident with the enteritis outbreak which has been definitely attributed to the public water supply. The typhoid cases have been relatively mild, and no deaths occurred in 1921.

RECENT EFFORTS TOWARD IMPROVING THE PUBLIC WATER SUPPLY.

As noted previously in this report, the Delaware Water Co. has made several attempts to furnish a public water supply adequate enough in yield from the wells to permit abandonment of the emergency river connection. All attempts to increase the ground water supply satisfactorily have failed. On October 11, 1917, the State health department approved a scheme of supplementing the ground water supply by the use of land filters, but made approval conditional on the abandonment of the river intake and satisfactory operation of the chlorine disinfection devices.

The Delaware Water Co. became convinced that it was not possible to comply with the two conditions mentioned, and, accordingly, on March 18 and May 25, 1920, preliminary plans were filed with the State department of health for a modern rapid sand filter plant to be built at the site of the existing works and using Olentangy River as a source of supply. Subsequently the city of Delaware considered the proposition to provide a municipal water supply and, accordingly, did not give the water company renewal of contract for water rental at the proposed schedule of rates filed. The city and the company each had appraisals of the water works made; but the city did not agree to purchase the works, nor did it signify its attitude with respect to a purchase.

The company has been unsuccessful in getting a contract for water rates that would permit the construction of a filter plant and has appealed to the public utilities commission for an adjustment of water rates to give a fair return on the existing works. In all probability the company will seek an added rate adjustment to permit the financing of a new water purification plant. At the time of this

report, this rate question is before the public utilities commission for decision. In the meanwhile the water company has employed a consulting engineer to prepare complete plans for a water purification and softening plant. The company has expressed in writing to the State department of health its intention of constructing the water purification plant devices if favorable rate adjustments can be obtained.

SUMMARY.

Acting upon the petition adopted by the Delaware District Board of Health December 8, 1921, in accordance with the provisions of section 1252 of the General Code of Ohio, the public water supply of Delaware was investigated by representatives of the State department of health. It was found that the existing sources of supply consisted of ground water supplemented by use of Olentangy River water, the use of the latter having been almost a regular procedure during 1920 and 1921. The disinfection treatment of the water supply during this interval was not sufficiently uniformly satisfactory to make the water suitable from a sanitary standpoint. The conclusion reached, therefore, is that the public water supply has been found to be impure and dangerous to health and that it is not practicable to sufficiently improve the character of the supply by removing the sources of pollution affecting it. The complaint of the city board of health is justified, and action should be taken by the State department of health to compel the installation of the necessary public water supply improvements.

Appendix.

TABLE I.—*Municipalities on Olentangy River watershed above Delaware waterworks intake.*

Area of watershed above Delaware waterworks intake	sq. miles..	384
Total urban population		12,550
Urban population per sq. mile		33

Distance above intake.	City or town.	Population.	Incorporated.	Remarks.
Miles.				
7	Norton	116	No	West Branch; no water supply; no sewers.
9	Waldo	344	Yes	Do.
9	Westfield	118	No	East Branch; no water supply; no sewers.
10	Ashley	[1] 260	Yes	Do.
17	Cardington	1,109	Yes	Do.
23	Edison	356	Yes	Do.
25	Mt. Gilead	1,837	Yes	East Branch; water supply; sewage treatment.
27	Caledonia	492	Yes	West Branch; no water supply; no sewers.
31	Martel	151	No	Do.
	Climax	62	No	Do.
	Iberia	150	No	Do.
35	New Winchester	107	No	Do.
	St. James	44	No	Do.
46	Galion	7,374	Yes	West Branch; water supply; sewage treatment.
Total..	14	12,550	7 incorporated; 7 unincorporated.	2 water supply, sewage treatment; 12 no water supply, no sewers.

[1] Population of Ashley is 786. About one-third of the village is on the Olentangy River watershed.

The following summary of investigations of outbreak of enteritis at Delaware, Ohio, in 1921, were compiled from records of the division of communicable diseases, Ohio State Department of Health.

TABLE II.—*Chronology of enteritis cases.*

Date of onset.	Number of positive cases.	Date of onset.	Number of positive cases.
1921.		1921.	
October 1 to 10	40	November 11 to 20	240
October 11 to 20	0	November 21 to 30	12
October 21 to 31	1		
November 1 to 10	80	Total	373

TABLE III.—*Relation of water supply to occurrence of enteritis.*

Water supply used.	Suspected and positive cases.		Positive cases.	
	Number.	Per cent.	Number.	Per cent.
City water exclusively	643	86.5	364	97.6
Well water exclusively	56	7.6	2	0.5
Both city and well water	44	5.9	7	1.9
Total	743	100	373	100

NOTE.—Total number of positive enteritis cases equals 50.2 per cent of total suspected and positive cases.

TABLE IV.—*Typhoid fever at Delaware, Ohio.*[1]

Year.	Population.	Total cases.	Total deaths.	Case rate (per 100,000).	Death rate (per 100,000).
1909	8,905		5		55.6
1910	9,076		6		66.1
1911	9,044		1		10.5
1912	9,012		1		11.0
1913	8,980	4	2	44.5	22.2
1914	8,948	4	2	44.7	22.3
1915	8,916		1		11.2
1916	8,884	32	3	360.0	33.7
1917	8,852	10	5	113.0	56.5
1918	8,820	4	2	[2] 45.4	[2] 22.7
1919	8,788	6	1	68.3	11.4
1920	8,756	9	1	102.8	11.4
1921	8,800	10	0	[3] 113.6	[3] 0.0
Average				(8 yrs.) 111.5	(13 yrs.) [4] 25.7

[1] From Ohio State Department of Health mortality records 1909–1921.
[2] Chlorination of public water supply begun May 3, 1917.
[3] Typhoid records for 1921 up to December 15, 1921; all cases occurred during period September 1 to December 3.
[4] Average typhoid death rate for 9 years before chlorination, 32.1; for 4 years after chlorination, 11.4.

TABLE V.—*Summary of analyses of public water supply at Delaware.*

[Ohio State Department of Health Laboratories.]

Date of survey.	Water treatment data.				Bacteriological data.								
	River intake used.	Appearance of water treated.	P.P.M. chlorine applied.	P.P.M. residual chlorine.	No. of city tap samples.	Bacteria per c.c.		B. coli results (confirmed).					
						Average at 20°C.	Average at 37°C.	1 c. c.			10 c. c.		
								Neg.	Sus.	Pos.	Neg.	Sus.	Pos.
Feb. 9, 1918	Yes	Turbid.	0.45	.....	6	291	42	6	0	0	1	2	3
Mar. 18, 1918	No.	Clear.	0.20	.....	7	77	51	6	0	0	6	0	0
Jan. 9, 1920	Yes	Clear.	0.35	.....	4	26	33	0	4	0	0	3	1
Nov. 13, 1920	Yes	Clear.	1.00	.....	6	103	50	6	0	0	6	0	0
Dec. 2, 1920	Yes	Turbid.	1.80	0.35	12	84	154	12	0	0	6	4	2
Dec. 20, 1920	Yes	Turbid.	1.80	0.35	12	41	15	5	2	5	3	4	5
Nov. 17, 1921	Yes	Turbid.	1.70	0.25	8	114	130	8	0	0	2	6	0
Dec. 13, 1921	No.	Clear.	1.80	.....	10	4	2	10	0	0	10	0	0

Report of operation of the Delaware Water Co. disinfection plant to the Ohio State Department of Health.

AUGUST, 1921.

Date.	Total water treated (thousands of gallons).	Pounds.		Temperature of water.	Parts per million.			Bacterial results.							
								20° C—48 Hrs.		37° C—24 Hrs.		Presumptive B. Coli.			
												Bile—Broth.			
												Raw.		Disinf.	
		Hypo.	Liq. Cl.		Turbidity.	Color.	Iron.	Raw.	Disinf.	Raw.	Disinf.	1 c.c.	10 c.c.	1 c. c.	10 c.c.
				°F.											
1	1,197	....	14	....	....	....	....	....	....	....	.....	....	....	....	.....
2	1,144	....	14	....	....	....	....	....	....	....	.....	....	....	....	.....
3	1,014	....	15	....	....	....	....	....	....	....	.....	....	....	....	.....
4	1,074	....	13	....	....	....	....	....	....	....	35	....	....	0	0
5	1,005	....	14	....	....	....	....	....	....	....	.....	....	....	....	.....
6	990	....	13½	....	....	....	....	....	....	....	.....	....	....	....	.....
7	970	....	12	....	....	....	....	....	....	....	.....	....	....	....	.....
8	1,113	....	14	....	....	....	....	....	....	....	.....	....	....	....	.....
9	1,143	....	14	....	....	....	....	....	....	....	.....	....	....	....	.....
10	1,070	....	13	....	....	....	....	....	....	....	.....	....	....	....	.....
11	1,003	....	13	....	....	....	....	....	....	....	.....	....	....	....	.....
12	1,032	....	14½	....	....	....	....	....	....	....	.....	....	....	....	.....
13	1,085	....	13½	....	....	....	....	....	....	....	150	....	....	0	0
14	935	....	13	....	....	....	....	....	....	....	.....	....	....	....	.....
15	1,080	....	13½	....	....	....	....	....	....	....	.....	....	....	....	.....
16	937	....	13½	....	....	....	....	....	....	....	.....	....	....	....	.....
17	1,160	....	14	....	....	....	....	....	....	....	.....	....	....	....	.....
18	998	....	13½	....	....	....	....	....	....	....	10	....	....	0	0
19	981	....	12	....	....	....	....	....	....	....	.....	....	....	....	.....
20	1,031	....	13½	....	....	....	....	....	....	....	.....	....	....	....	.....
21	970	....	14	....	....	....	....	....	....	....	.....	....	....	....	.....
22	1,006	....	14½	....	....	....	....	....	....	....	.....	....	....	....	.....
23	1,000	....	14	....	....	....	....	....	....	....	.....	....	....	....	.....
24	1,075	....	13	....	....	....	....	....	....	....	.....	....	....	....	.....
25	1,104	....	15	....	....	....	....	....	....	....	9	....	....	0	0
26	1,072	....	14½	....	....	....	....	....	....	....	.....	....	....	....	.....
27	1,017	....	15	....	....	....	....	....	....	....	.....	....	....	....	.....
28	1,139	....	14	....	....	....	....	....	....	....	.....	....	....	....	.....
29	1,303	....	17	....	....	....	....	....	....	....	.....	....	....	....	.....
30	1,237	....	15½	....	....	....	....	....	....	....	.....	....	....	....	.....
31	1,190	....	14½	....	....	....	....	....	....	....	.....	....	....	....	.....
Total	33,075	....	[1]476½	....	....	....	....	....	....	....	204	....	....	0/4	0/4
Average	1,066	....	.....	....	....	....	....	....	....	....	51	....	....	....	.....
Maximum	1,237	....	.....	....	....	....	....	....	....	....	150	....	....	....	.....
Minimum	937	....	.....	....	....	....	....	....	....	....	9	....	....	....	.....

[1] 1.72 p. p. m.

Report of operation of the Delaware Water Co. disinfection plant to the Ohio State Department of Health—Continued.

SEPTEMBER, 1921.

Date.	Total water treated (thousands of gallons).	Pounds.		Temperature of water.	Parts per million.			Bacterial results.							
								20° C—48 Hrs.		37° C—24 Hrs.		Presumptive B. Coli.			
												Bile—Broth.			
												Raw.		Disinf.	
		Hypo.	Liq. Cl.		Turbidity.	Color.	Iron.	Raw.	Disinf.	Raw.	Disinf.	1 c.c.	10 c.c.	1 c. c.	10 c.c.
				°F.											
1	1,114	....	15	....	....	....	....	....	....	....	....	....	....	....	....
2	1,020	....	14	....	....	....	....	....	....	....	(1)	....	....	....	....
3	947	....	13	....	....	....	....	....	....	....	....	....	....	....	....
4	906	....	14	....	....	....	....	....	....	....	....	....	....	....	....
5	991	....	14	....	....	....	....	....	....	....	....	....	....	....	....
6	1,010	....	15	....	....	....	....	....	....	....	....	....	....	....	....
7	1,068	....	15	....	....	....	....	....	....	....	....	....	....	....	....
8	1,035	....	15	....	....	....	....	....	....	....	30	....	....	0	0
9	1,058	....	15	....	....	....	....	....	....	....	....	....	....	....	....
10	986	....	14	....	....	....	....	....	....	....	....	....	....	....	....
11	904	....	14	....	....	....	....	....	....	....	....	....	....	....	....
12	1,058	....	14½	....	....	....	....	....	....	....	....	....	....	....	....
13	1,178	....	14½	....	....	....	....	....	....	....	....	....	....	....	....
14	1,034	....	15	....	....	....	....	....	....	....	....	....	....	....	....
15	1,064	....	13½	....	....	....	....	....	....	....	....	....	....	....	....
16	1,110	....	15	....	....	....	....	....	....	....	90	....	....	0	(2)
17	943	....	14	....	....	....	....	....	....	....	....	....	....	....	....
18	857	....	13	....	....	....	....	....	....	....	....	....	....	....	....
19	1,067	....	15	....	....	....	....	....	....	....	....	....	....	....	....
20	1,215	....	14	....	....	....	....	....	....	....	....	....	....	....	....
21	1,018	....	14½	....	....	....	....	....	....	....	....	....	....	....	....
22	1,097	....	12	....	....	....	....	....	....	....	2,000	....	....	0	0
23	1,072	....	14	....	....	....	....	....	....	....	....	....	....	....	....
24	1,088	....	15	....	....	....	....	....	....	....	....	....	....	....	....
25	1,010	....	14½	....	....	....	....	....	....	....	....	....	....	....	....
26	1,095	....	14½	....	....	....	....	....	....	....	....	....	....	....	....
27	1,068	....	14½	....	....	....	....	....	....	....	....	....	....	....	....
28	1,221	....	14½	....	....	....	....	....	....	....	....	....	....	....	....
29	1,139	....	15	....	....	....	....	....	....	....	20	....	....	0	0
30	1,388	....	15	....	....	....	....	....	....	....	....	....	....	....	....
Total	31,791	....	(3) 430	....	....	....	....	....	....	....	2,140	....	....	0/4	1/3
Average	1,059	....	14.3	....	....	....	....	....	....	....	535	....	....	....	....
Maximum	1,388	....	15	....	....	....	....	....	....	....	2,000	....	....	....	....
Minimum	857	....	12	....	....	....	....	....	....	....	20	....	....	....	....

OCTOBER, 1921.

1	1,100	....	16	....	....	....	....	....	....	....	....	....	....	....	....
2	923	....	13	....	....	....	....	....	....	....	....	....	....	....	....
3	797	....	15	....	....	....	....	....	....	....	....	....	....	....	....
4	967	....	14	....	....	....	....	....	....	....	....	....	....	....	....
5	1,008	....	15	....	....	....	....	....	....	....	....	....	....	....	....
6	1,142	....	14½	....	....	....	....	....	....	....	....	....	....	....	....
7	1,010	....	14	....	....	....	....	....	....	....	50	....	....	0	0
8	964	....	15	....	....	....	....	....	....	....	....	....	....	....	....
9	775	....	12½	....	....	....	....	....	....	....	....	....	....	....	....
10	865	....	13	....	....	....	....	....	....	....	....	....	....	....	....
11	1,094	....	13	....	....	....	....	....	....	....	....	....	....	....	....
12	1,147	....	15	....	....	....	....	....	....	....	....	....	....	....	....
13	1,231	....	12½	....	....	....	....	....	....	....	8	....	....	0	0
14	1,345	....	15	....	....	....	....	....	....	....	....	....	....	....	....
15	826	....	15	....	....	....	....	....	....	....	....	....	....	....	....
16	827	....	13	....	....	....	....	....	....	....	....	....	....	....	....
17	1,148	....	15	....	....	....	....	....	....	....	....	....	....	....	....
18	844	....	14	....	....	....	....	....	....	....	....	....	....	....	....
19	852	....	13½	....	....	....	....	....	....	....	....	....	....	....	....
20	802	....	14	....	....	....	....	....	....	....	18	....	....	0	0

[1] Broken in transit. [2] Positive. [3] 1.63 p. p. m.

Report of operation of the Delaware Water Co. disinfection plant to the Ohio State Department of Health—Continued.

OCTOBER, 1921—Continued.

Date.	Total water treated (thousands of gallons).	Pounds.		Temperature of water.	Parts per million.			Bacterial results.							
								20° C—48 Hrs.		37° C—24 Hrs.		Presumptive B. Coli.			
												Bile—Broth.			
												Raw.		Disinf.	
		Hypo.	Liq. Cl.		Turbidity.	Color.	Iron.	Raw.	Disinf.	Raw.	Disinf.	1 c.c.	10 c.c.	1 c. c.	10 c.c.
				°F.											
21	1,001	....	19½	....	....	....	....	....	....	....	....	....	....	....	....
22	901	....	11½	....	....	....	....	....	....	....	....	....	....	....	....
23	1,069	....	13½	....	....	....	....	....	....	....	....	....	....	....	....
24	1,120	....	13	....	....	....	....	....	....	....	....	....	....	....	....
25	1,055	....	12	....	....	....	....	....	....	....	....	....	....	....	....
26	1,150	....	14	....	....	....	....	....	....	....	....	....	....	....	....
27	1,129	....	12	....	....	....	....	....	....	....	6	....	....	0	0
28	1,165	....	15	....	....	....	....	....	....	....	....	....	....	....	....
29	1,054	....	12	....	....	....	....	....	....	....	....	....	....	....	....
30	1,012	....	13	....	....	....	....	....	....	....	....	....	....	....	....
31	1,016	....	14	....	....	....	....	....	....	....	....	....	....	....	....
Total	31,366	....	[1] 431½	....	....	....	....	....	....	....	82	....	....	0/4	0/4
Average	1,011	....	.....	....	....	....	....	....	....	....	20	....	....	.....	.....
Maximum	1,345	....	.....	....	....	....	....	....	....	....	50	....	....	.....	.....
Minimum	775	....	.....	....	....	....	....	....	....	....	6	....	....	.....	.....

NOVEMBER, 1921.

1	978	....	14	....	....	....	....	....	....	....	....	....	....	....	....
2	958	....	15	....	....	....	....	....	....	....	....	....	....	....	....
3	957	....	12	....	....	....	....	....	....	....	40	....	....	0	[2]
4	980	....	16	....	....	....	....	....	....	....	....	....	....	....	....
5	953	....	16	....	....	....	....	....	....	....	....	....	....	....	....
6	1,015	....	17	....	....	....	....	....	....	....	....	....	....	....	....
7	1,025	....	13	....	....	....	....	....	....	....	....	....	....	....	....
8	1,036	....	14½	....	....	....	....	....	....	....	....	....	....	....	....
9	1,046	....	13½	....	....	....	....	....	....	....	....	....	....	....	....
10	1,147	....	13½	....	....	....	....	....	....	....	40	....	....	0	0
11	1,079	....	13	....	....	....	....	....	....	....	....	....	....	....	....
12	945	....	15	....	....	....	....	....	....	....	....	....	....	....	....
13	1,053	....	13	....	....	....	....	....	....	....	....	....	....	....	....
14	950	....	14	....	....	....	....	....	....	....	....	....	....	....	....
15	1,094	....	12	....	....	....	....	....	....	....	....	....	....	....	....
16	1,046	....	13	....	....	....	....	....	....	....	....	....	....	....	....
17	1,167	....	[3] 11	....	....	....	....	....	....	....	50	....	....	0	[2]
18	1,035	....	14	....	....	....	....	....	....	....	....	....	....	....	....
19	915	....	[4] 15	....	....	....	....	....	....	....	....	....	....	....	....
20	1,042	....	15	....	....	....	....	....	....	....	....	....	....	....	....
21	1,008	....	15	....	....	....	....	....	....	....	....	....	....	....	....
22	1,015	....	13	....	....	....	....	....	....	....	....	....	....	....	....
23	997	....	14	....	....	....	....	....	....	....	0	....	....	0	0
24	868	....	13½	....	....	....	....	....	....	....	....	....	....	....	....
25	770	....	14	....	....	....	....	....	....	....	....	....	....	....	....
26	951	....	12½	....	....	....	....	....	....	....	....	....	....	....	....
27	954	....	14	....	....	....	....	....	....	....	....	....	....	....	....
28	1,083	....	14½	....	....	....	....	....	....	....	....	....	....	....	....
29	1,035	....	15	....	....	....	....	....	....	....	4	....	....	0	0
30	993	....	13	....	....	....	....	....	....	....	....	....	....	....	....
Total	30,105	....	[5] 418	....	....	....	....	....	....	....	134	....	....	0/5	2/3
Average	1,003	....	.....	....	....	....	....	....	....	....	27	....	....	.....	.....
Maximum	1,167	....	.....	....	....	....	....	....	....	....	50	....	....	.....	.....
Minimum	770	....	.....	....	....	....	....	....	....	....	0	....	....	.....	.....

[1] 1.65 p. p. m. [2] Positive. [3] 1.13 p. p. m. (min.). [4] 1.96 p. p. m. (max.) [5] 1.66 p. p. m.

Report of operation of the Delaware Water Co. disinfection plant to the Ohio State Department of Health—Continued.

DECEMBER, 1921.

Date.	Total water treated (thousands of gallons).	Pounds.		Temperature of water.	Parts per million.			Bacterial results.							
								20° C—48 Hrs.		37° C—24 Hrs.		Presumptive B. Coli.			
												Bile—Broth.			
												Raw.		Disinf.	
		Hypo.	Liq. Cl.		Turbidity.	Color.	Iron.	Raw.	Disinf.	Raw.	Disinf.	1 c. c.	10 c. c.	1 c. c.	10 c. c.
				°F.											
1	777	....	12	....	....	....	....	....	....	....	....	....	....	....	....
2	878	....	14½	....	....	....	....	....	....	....	....	....	....	....	....
3	976	....	15	....	....	....	....	....	....	....	....	....	....	....	....
4	535	....	15	....	....	....	....	....	....	....	....	....	....	....	....
5	1,013	....	14½	....	....	....	....	....	....	....	....	....	....	....	....
6	879	....	15	....	....	....	....	....	....	....	....	....	....	....	....
7	934	....	15	....	....	....	....	....	....	....	....	....	....	....	....
8	1,053	....	16	....	....	....	....	....	....	....	2	....	....	0	0
9	901	....	15	....	....	....	....	....	....	....	....	....	....	....	....
10	944	....	15	....	....	....	....	....	....	....	....	....	....	....	....
11	815	....	13	....	....	....	....	....	....	....	....	....	....	....	....
12	945	....	15½	....	....	....	....	....	....	....	....	....	....	....	....
13	1,068	....	15½	....	....	....	....	....	....	....	....	....	....	....	....
14	1,039	....	16	....	....	....	....	....	....	....	1	....	....	0	0
15	1,012	....	11	....	....	....	....	....	....	....	....	....	....	....	....
16	1,141	....	14	....	....	....	....	....	....	....	....	....	....	....	....
17	997	....	12½	....	....	....	....	....	....	....	....	....	....	....	....
18	962	....	10½	....	....	....	....	....	....	....	....	....	....	....	....
19	867	....	11	....	....	....	....	....	....	....	....	....	....	....	....
20	1,038	....	10	....	....	....	....	....	....	....	....	....	....	....	....
21	1,140	....	10	....	....	....	....	....	....	....	0	....	....	0	0
22	930	....	10	....	....	....	....	....	....	....	....	....	....	....	....
23	1,003	....	12	....	....	....	....	....	....	....	....	....	....	....	....
24	1,038	....	11	....	....	....	....	....	....	....	....	....	....	....	....
25	950	....	10	....	....	....	....	....	....	....	....	....	....	....	....
26	1,112	....	13½	....	....	....	....	....	....	....	....	....	....	....	....
27	1,048	....	14	....	....	....	....	....	....	....	....	....	....	....	....
28	1,063	....	11½	....	....	....	....	....	....	....	....	....	....	....	....
29	954	....	12	....	....	....	....	....	....	....	....	....	....	....	....
30	986	....	12	....	....	....	....	....	....	....	....	....	....	....	....
31	1,027	....	11	....	....	....	....	....	....	....	....	....	....	....	....
Total	30,025	....	[1] 403	....	....	....	....	....	....	....	3	....	....	0/3	0/3
Average	968	....	....	....	....	....	....	....	....	....	1	....	....	....	....
Maximum	1,140	....	....	....	....	....	....	....	....	....	2	....	....	....	....
Minimum	535	....	....	....	....	....	....	....	....	....	0	....	....	....	....

[1] 1.6 p. p. m.

OHIO LAW FOR ENFORCING CORRECTION OF STREAM POLLUTION AND IMPROVEMENT OF PUBLIC WATER SUPPLIES.

In 1908 the General Assembly of Ohio enacted a law commonly known as the Bense Act and codified as sections 1249 to 1261, inclusive, General Code of Ohio. This law was passed for the purpose of providing for correction of pollution of streams by sewage and other wastes from municipalities, institutions, industrial establishments, and other sources, and for the improvement of impure and unsafe public

water supplies of municipalities and public institutions. In 1919 this law was amended, and additional sections were enacted in 1921. The sections now read as follows:

SECTION 1249. Whenever the council or board of health, or the officer or officers performing the duties of a council or board of health, of a city or village, the commissioners of a county, the trustees of a township, or 50 of the qualified electors of any city, village, or township, or the managing officer or officers of a public institution set forth in writing to the State department of health that a city, village, public institution, corporation, partnership, or person is discharging or is permitting to be discharged sewage or other wastes into a stream, watercourse, canal, lake, or pond, and is thereby creating a public nuisance detrimental to health or comfort, or is polluting the source of any public water supply, the commissioner of health shall forthwith inquire into and investigate the conditions complained of.

SEC. 1250. If the commissioner of health finds that the discharge of sewage or other wastes from a city, village, or public institution, or by a corporation, partnership, or person, has so corrupted a stream, watercourse, canal, lake, or pond as to give rise to foul and noxious odors or to conditions detrimental to health or comfort,[1] the source of public water supply of a city, village, community, or public institution is subject to contamination, or has been rendered impure by such discharge of sewage or other wastes, he shall notify the mayor or managing officer or officers of such city, village, public institution, or corporation, partnership, or person, of his findings and of the time and place when and where a hearing may be had before the public health council. The notice herein provided shall be by personal service or by registered letter.

SEC. 1251. After such hearing if the public health council shall determine that improvements or changes are necessary and should be made, the commissioner of health shall notify the mayor or managing officer or officers of such city, village, public institution, or corporation, partnership, or person, to install works or means, satisfactory to the commissioner of health, for purifying or otherwise disposing of such sewage or other wastes, or to change or enlarge existing works, in a manner satisfactory to the commissioner of health. Such works or means must be completed and put into operation within the time fixed in the order. The order of the commissioner of health and the time fixed for making the improvements or changes shall be approved by the public health council, and notification shall be had by personal service upon or by registered letter to the mayor or managing officer or officers of the city, village, public institution, or corporation, partnership, or person to whom said order shall apply. But no city or village discharging sewage into a river which separates the State of Ohio from another State shall be required to install sewage purification works so long as the unpurified sewage of cities or villages of another State is discharged into such river above such city or village of this State.

SEC. 1252. Whenever the board of health or officer or officers performing the duties of a board of health of a city or village or 10 per cent of the electors thereof or the managing officer or officers of a public institution shall file with the State department of health a complaint, in writing, setting forth that it is believed that the public water supply of such city or village or public institution is impure and dangerous to health, the State commissioner of health shall forthwith inquire into and investigate the conditions complained of.

SEC. 1253. If the commissioner of health finds that the public water supply of a city, village, or public institution is impure and dangerous to health and that it is not practicable to sufficiently improve the character of such supply by removing the source or sources of pollution affecting it, or if the commissioner of health finds that such water supply is being rendered impure and dangerous to health by reason of

[1] Words "or that" omitted in engrossing.

improper construction or inadequate size of existing water purification works, he shall notify such city, village, or public institution, corporation, partnership or person owning or operating such water supply or waterworks of his findings and of the time and place, when, and where a hearing may be had before the public health council. Such notice shall be by personal service or shall be sent by registered letter to the mayor or managing officer or officers of the city, village, public institution, or corporation, partnership, or person owning or operating such water supply or waterworks.

SEC. 1254. After such hearing, if the public health council shall determine that improvements or changes are necessary and should be made, the commissioner of health shall notify the mayor or managing officer or officers of the city, village, public institution, or corporation, partnership, or person owning or operating such water supply or waterworks to change the source of supply or to install and place in operation water purification works or device satisfactory to the commissioner of health, or to change or enlarge existing water purification works in a manner satisfactory to said commissioner. The order of the commissioner of health and the time fixed for making the improvements or changes shall be approved by the public health council and notification shall be had by personal service upon or by registered letter to the mayor or managing officer or officers of the city, village, public institution, or corporation, partnership, or person to whom said order shall apply.

SEC. 1252-4. When the commissioner of health finds upon investigation that a public water supply is subject to the danger of contamination by reason of unsatisfactory location, protection, construction, operation, or maintenance of the system, or by reason of the existence of an unsafe emergency supply or connection to an unsafe private or auxiliary supply, or if the commissioner of health finds upon investigation that the public health is endangered by reason of the existence of an inadequate public water supply or waterworks system, he shall notify the city, village, county, public institution, corporation, partnership, or person owning or operating such public water supply or waterworks system of his findings and of the time and place, when, and where a hearing may be had before the public health council. Such notice shall be by personal service, or shall be sent by registered letter to the mayor or managing officer or officers of the city, village, county, or public institution, or to the corporation, partnership, or person owning or operating such supply. Investigations made in accordance with this section may be at the initiative of the commissioner of health.

SEC. 1252-5. After such hearing, if the public health council shall determine that improvements or changes are necessary and should be made, the commissioner of health shall notify the mayor or managing officer or officers of the city, village, county, or public institution, or the corporation, partnership, or person owning or operating such water supply or waterworks system to make improvements, corrections, and changes in the location, protection, construction, operation, or maintenance of the water supply or waterworks system satisfactory to the commissioner of health, so as to prevent the contamination of the water supply or to provide a water supply not subject to the danger of contamination, or to provide a water supply and waterworks system adequate to avoid endangering the public health. The order of the commissioner of health and the time fixed for making the improvements or changes shall be improved by the public health council and the notification shall be made by personal service upon or by registered letter to the mayor or managing officer or officers of the city, village, county, or public institution, or to the officials, corporation, partnership, or person to whom said order shall apply. When such order is issued, subsequent procedures shall be in accordance with and governed by the provisions of sections 1257, 1258, 1258-1, 1258-2, 1258-3, 1258-4, 1258-5, 1258-6, 1258-7, 1258-8, 1259, 1259-1, 1260, and 1261 of the General Code.

SEC. 1255. When the commissioner of health finds upon investigation that any water-purification or sewage-treatment works, on account of incompetent supervision or inefficient operation, is not producing an effluent of such quality as might be reason-

ably obtained from such water-purification or sewage-treatment works, and by reason of such neglect the public water supply has become impure and dangerous to health, or that a stream, watercourse, canal, lake, pond, or body of water has become offensively polluted or has become a public nuisance or that a public water supply taken from such stream, watercourse, canal, lake, pond, or body of water has been rendered impure and dangerous to health, the commissioner of health shall issue an order to the mayor or managing officer or officers of the city, village, public institution, or corporation, partnership, or person having charge of or owning such water-purification or sewage-treatment works to secure an effluent of such quality as might be reasonably expected from such works and satisfactory to the commissioner of health.

SEC. 1256. If the managing officer or officers of such city, village, public institution, or corporation, partnership, or person fails, for a period of five days after receiving such order, to secure an effluent satisfactory to the commissioner of health, the commissioner of health shall report the fact to the public-health council and upon its approval may order such managing officer or officers or person owning such works to appoint within 10 days, and pay the salary of a competent person to be approved by the commissioner of health, to take charge of and operate such works as to secure the results demanded by the commissioner of health.

SEC. 1257. If the findings or order of the commissioner of health, when approved by the public-health council and made in pursuance of the provisions of this chapter relating to stream pollution and public water supply, are not acceptable to any city, village, public institution, corporation, or owner effected [affected] thereby, such city, village, public institution, corporation, or owner shall have the right of appeal as follows: Two reputable and experienced sanitary engineers shall be chosen, one by the city, village, public institution, corporation, or owner and the other by the commissioner of health, who shall not be a regular employee of the State department of health. Such persons shall act as referees. If the referees so chosen are unable to agree, they shall choose a third engineer of like standing, and the vote of the majority shall be final. As soon as such referees are chosen, the commissioner of health shall file with them a certified copy of the complaint and the findings and order of the State department of health, and it shall be the duty of such referees to investigate the conditions complained of and to determine if such findings are correct and if the order provides a proper remedy for such conditions. The appeal provided for in this section shall be made within 30 days from the date of service of the order upon the mayor or managing officer or officers of the city, village, public institution, or corporation or owner, and notice thereof in writing shall be served upon the commissioner of health by personal service for which there shall be acknowledgment, or sent by registered letter.

SEC. 1258. Such referees may affirm or reject the findings or order of the commissioner of health or may modify such order as to the time within which improvements or changes shall be made, and their decision, which must be in writing, and be made within a reasonable time, shall be reported to the commissioner of health and to the city, village, public institution, corporation, or owner and shall be final except as hereinafter provided. If said findings and order shall be approved or modified by said referees, the order shall be enforced by the commissioner of health in the manner provided for in this chapter. The fees and expenses of the referee appointed by the commissioner of health shall be paid from funds appropriated to the State department of health for such purpose. The fees and expenses of the referee appointed by the city, village, public institution, corporation, or owner shall be paid by the city, village, public institution, corporation, or owner making such appeal. The fees and expenses of the third referee shall be equally divided between the State department of health and the city, village, public institution, corporation, or owner making appeal.

SEC. 1258–1. Where an order of the commissioner of health to a corporation, partnership, or person owning and operating a waterworks is approved or modified by the referees provided for in sections 1257 and 1258 of the General Code, or if such corpora-

tion, partnership, or person shall accept such order without appeal to such referee, and it shall be claimed by such corporation, partnership, or person that the revenues derived from the operation of such waterworks are not sufficient to warrant the expense of making the improvements or changes so ordered, an application may be made to the public utilities commission of Ohio for authority to make and collect additional charges from the water consumers and users of the utility's service. Upon the filing of such application the commission shall fix a time for the hearing thereof and give notice thereof to the mayor of the municipality and the State commissioner of health, and if upon hearing the public utilities commission shall determine and find that the rates theretofore authorized to be charged will not provide revenue sufficient to operate said waterworks and make a reasonable return upon the investment after such improvements and changes are made, it shall by order authorize the collection of such additional charges and compensation as may under all the circumstances be just and reasonable.

SEC. 1258–2. An order as made by the commissioner of health or as approved or modified by the referees as herein provided shall be reversed, vacated, or modified by the supreme court on a petition of error if upon consideration of the record such court is of the opinion that such order was unlawful and unreasonable.

SEC. 1258–3. The proceeding to obtain such reversal, vacation, or modification shall be by petition in error, filed in the supreme court by the municipal corporation, managing board, or officer of a public institution, corporation, partnership, or person to which such order of the commissioner of health shall apply, setting forth the errors complained of; thereupon, unless the same is duly waived, a summons shall issue and be served, as in other cases, upon the commissioner of health, or in his absence by leaving a copy at his office at the city of Columbus.

SEC. 1258–4. Upon service or waiver of summons in error the commissioner of health shall forthwith transmit to the clerk of the supreme court a transcript of his journal entries, original papers or transcripts thereof, and a certified copy of all evidence adduced upon the hearing before the public-health council in the proceeding complained of, which shall be filed in said court.

SEC. 1258–5. No proceeding to reverse, vacate, or modify an order of the commissioner of health shall be deemed commenced unless the petition therefor is filed within 30 days after service of the order upon the mayor or managing officer or officers of the municipal corporation, public institution, or corporation, partnership, or person to whom such order shall apply. Or if there has been an appeal to referees then such petition shall be filed within two weeks after the determination of such appeal and due notice thereof. A proceeding to reverse, vacate, or modify an order of the commissioner of health shall operate to stay execution thereof until the supreme court shall render a decision thereon.

SEC. 1258–6. No court other than the supreme court shall have the power to review, suspend, or delay any order of the commissioner of health, or enjoin, restrain, or interfere with the commissioner of health or public-health council in the performance of official duties required or power exercised under the provisions of this act.

SEC. 1258–7. All orders heretofore issued or promulgated by the State board of health or by the State department of health shall continue in full force and have the same effect as though thay had been lawfully made, issued, or promulgated under the provisions of this act.

SEC. 1258–8. Each section of this act and every part thereof is hereby declared to be an independent section, and part of a section, and the holding of a section or part of a section thereof to be void or ineffective for any cause shall not be deemed to affect any other section or part thereof.

SEC. 1259. Each municipal council, department, or officer having jurisdiction to provide for the raising of revenues by tax levies, sale of bonds, or otherwise shall take

all steps necessary to secure the funds for any such purpose or purposes. When the funds are so secured, or the bonds therefor have been authorized by the proper municipal authority, such funds shall be considered as in the treasury and appropriated for such particular purpose or purposes, and shall not be used for any other purpose. The bonds authorized to be issued for any such purpose or purposes shall not exceed 3 per cent of the total value of all property in any city or village, as listed and assessed for taxation, and may be in addition to the total bonded indebtedness of such city or village otherwise permitted by law. The question of the issuance of such bonds shall not be required to be submitted to a vote of the electors.

SEC. 1259–1. Interest and sinking-fund levies on account of bonds issued under section 1259 of the General Code, in compliance with orders of the State commissioner of health, shall be exempt from all the limitations on tax levies provided by sections 5649–2 and 5649–3a of the General Code. Such levies shall also be exempt from the limitation provided by section 5649–5b of the General Code, if the question of making such additional levy shall be submitted to the electors of the municipality issuing, or proceeding to issue, such bonds in the manner provided in sections 5649–5 and 5649–5a of the General Code, and the same is approved by a majority of the electors voting on such question; and the proper legislative authorities of any such municipal corporation are hereby authorized to submit such question in the manner provided in said sections of the General Code at any regular election or at a special election. The number of years for which such levy shall be authorized shall not be required to be printed on the ballot, and the approval of the electors shall constitute sufficient authority for the making of such additional levy annually, during the time for which the bonds are to to run, or until the same are redeemed, or the redemption thereof with interest is fully provided for.

SEC. 1260. If a council, department, or officer of a municipality, or person, partnership, or private corporation fails or refuses for a period of 30 days, after notice given him or them by the commissioner of health of his findings and order and the approval thereof by the public-health council, to perform any act or acts required of him or them by this chapter relating to stream pollution and public water supply, the members of such council or department, or such officer or officers, person, partnership, or private corporation shall be personally liable for such default, and shall forfeit and pay to the State of Ohio $500, to be paid into the State treasury to the credit of the general revenue fund.

SEC. 1261. An action may be begun for the recovery of such penalty by the prosecuting attorney of a county in the name of the State in the court of common pleas of such county having jurisdiction of any such party or parties, or it may be begun by the attorney general in such county or the county of Franklin, as provided by law. The court of common pleas, upon good cause shown, may, at its discretion, remit such penalty or any part thereof.

DECISIONS OF UNITED STATES SUPREME COURT CONSTRUING HARRISON NARCOTIC ACT.

The following are decisions of the United States Supreme Court construing the Harrison Narcotic Act:

Mr. Chief Justice TAFT delivered the opinion [1] of the court:

This is a writ of error to the district court under the criminal appeals act of March 2, 1907 (34 Stat. 1246). Defendants in error were indicted for a violation of the narcotic act of December 17, 1914 (38 Stat. 786). The indictment charged them with unlawfully selling to another a certain amount of a derivative of opium and a certain amount of a derivative of coca leaves, not in pursuance of any written order on a form issued in blank for that purpose by the Commissioner of Internal Revenue, contrary to the provisions of section 2 of the act. The defendants demurred to the indictment on the ground that it failed to charge that they had sold the inhibited drugs knowing

[1] United States v. Balint et al.

them to be such. The statute does not make such knowledge an element of the offense. The district court sustained the demurrer and quashed the indictment. The correctness of this ruling is the question before us.

While the general rule at common law was that the scienter was a necessary element in the indictment and proof of every crime, and this was followed in regard to statutory crimes, even where the statutory definition did not in terms include it (Rex *v.* Sleep, 8 Cox, 472), there has been a modification of this view in respect to prosecutions under statutes the purpose of which would be obstructed by such requirement. It is a question of legislative intent to be construed by the court. It has been objected that punishment of a person for an act in violation of law when ignorant of the facts making it so is an absence of due process of law. But that objection is considered and overruled in Shevlin-Carpenter Co. *v.* Minnesota (218 U. S. 57, 69, 70), in which it was held that in the prohibition or punishment of particular acts the State may in the maintenance of a public policy provide "that he who shall do them shall do them at his peril and will not be heard to plead in defense good faith or ignorance." Many instances of this are to be found in regulatory measures in the exercise of what is called the police power where the emphasis of the statute is evidently upon achievement of some social betterment rather than the punishment of the crimes, as in the cases of mala in se.—Commonwealth *v.* Mixer (207 Mass. 141); Commonwealth *v.* Smith (166 Mass. 370); Commonwealth *v.* Hallett (103 Mass. 452); People *v.* Kibler (106 N. Y. 321); State *v.* Kinkead (57 Conn. 173); McCutcheon *v.* People (79 Ill. 601); State *v.* Thompson (74 Iowa, 119); United States *v.* Leathers (1 Sawy. 1); United States *v.* Thompson (12 Fed. 245); United States *v.* Mayfield (177 Fed. 765); United States *v.* Thirty-six Bottles of Gin (210 Fed. 271); Feeley *v.* United States (236 Fed. 903); Toves *v.* United States (249 Fed. 191). So, too, in the collection of taxes the importance to the public of their collection leads the legislature to impose on the taxpayer the burden of finding out the facts upon which his liability to pay depends and meeting it at the peril of punishment.—Regina *v.* Woodrow (15 M. & W. 404); Bruhn *v.* Rex (1909 A. C. 317). Again, where one deals with others and his mere negligence may be dangerous to them, as in selling diseased food or poison, the policy of the law may, in order to stimulate proper care, require the punishment of the negligent person, though he be ignorant of the noxious character of what he sells.—Hobbs *v.* Winchester Corporation (2 K. B. Div. 471, 483).

The question before us, therefore, is one of the construction of the statute and of inference of the intent of Congress. The narcotic act has been held by this court to be a taxing act with the incidental purpose of minimizing the spread of addiction to the use of poisonous and demoralizing drugs.—United States *v.* Doremus (249 U. S. 86, 94); United States *v.* Jin Fuey Moy (241 U. S. 86, 94).

Section 2 of the narcotic act (38 Stat. 786) we give in part in the margin.[1] It is very evident from a reading of it that the emphasis of the section is in securing a

[1] Part of sec. 2 of an act entitled "An act to provide for the registration of, with collectors of internal revenue, and to impose a special tax upon all persons who produce, import, manufacture, compound, deal in, dispense, sell, distribute, or give away opium or coca leaves, their salts, derivatives, or preparations, and for other purposes," approved Dec. 17, 1914 (38 Stat. 785, 786).

SEC. 2. That it shall be unlawful for any person to sell, barter, exchange, or give away any of the aforesaid drugs except in pursuance of a written order of the person to whom such article is sold, bartered, exchanged, or given, on a form to be issued in blank for that purpose by the Commissioner of Internal Revenue. Every person who shall accept any such order and in pursuance thereof shall sell, barter, exchange, or give away any of the aforesaid drugs shall preserve such order for a period of two years in such a way as to be readily accessible to inspection by any officer, agent, or employee of the Treasury Department duly authorized for that purpose, and the State, Territorial, District, municipal, and insular officials named in section 5 of this act. Every person who shall give an order as herein provided to any other person for any of the aforesaid drugs shall, at or before the time of giving such order, make or cause to be made a duplicate thereof on a form to be issued in blank for that purpose by the Commissioner of Internal Revenue and in case of the acceptance of such order shall preserve such duplicate for said period of two years in such a way as to be readily accessible to inspection by the officers, agents, employees, and officials hereinbefore mentioned.

close supervision of the business of dealing in these dangerous drugs by the taxing officers of the Government and that it merely uses a criminal penalty to secure recorded evidence of the disposition of such drugs as a means of taxing and restraining the traffic. Its manifest purpose is to require every person dealing in drugs to ascertain at his peril whether that which he sells comes within the inhibition of the statute, and if he sells the inhibited drug in ignorance of its character, to penalize him. Congress weighed the possible injustice of subjecting an innocent seller to a penalty against the evil of exposing innocent purchasers to danger from the drug, and concluded that the latter was the result preferably to be avoided. Doubtless considerations as to the opportunity of the seller to find out the fact and the difficulty of proof of knowledge contributed to this conclusion. We think the demurrer to the indictment should have been overruled.

Judgment reversed.

Mr. Justice CLARKE took no part in this decision.

Mr. Justice DAY delivered the opinion[1] of the court:

This case is here under the criminal appeals act (34 Stat. 1246). The statute involved is the narcotic drug act of December 17, 1914 (ch. 1, sec. 2 (*a*); 38 Stat. 785, 786).

This statute in section 2, subdivision (*a*), makes it an offense to sell, barter, exchange, or give away any of the narcotic drugs named in the act except in pursuance of a written order of the person to whom such article is sold, bartered, exchanged, or given, on a form to be issued in blank for that purpose by the Commissioner of Internal Revenue. It is further provided that nothing in the section shall apply to the dispensing or distribution of any of the drugs to a patient of a registered physician in the course of his professional practice only, or to the sale, dispensing, or distribution of said drugs by a dealer to a consumer in pursuance of a written prescription issued by a physician registered under the act.

The indictment charges that the defendant did unlawfully sell, barter, and give to Willie King a compound, manufacture, and derivative of opium, to wit, 150 grains of heroin and 360 grains of morphine, and a compound, manufacture, and derivative of coca leaves, to wit, 210 grains of cocaine, not in purusance of any written order of King on a form issued for that purpose by the Commisioner of Internal Revenue of the United States; that the defendant was a duly licensed physician and registered under the act, and issued three written orders to the said King in the form of prescriptions signed by him, which prescriptions called for the delivery to King of the amount of drugs above described; that the defendant intended that King should obtain the drugs from the druggist upon the said orders; that King did obtain upon said orders drugs of the amount and kind above described pursuant to the said prescriptions; that King was a person addicted to the habitual use of morphine, heroin, and cocaine, and known by the defendant to be so addicted; that King did not require the administration of either morphine, heroin, or cocaine by reason of any disease other than such addiction; that defendant did not dispense any of the drugs for the purpose of treating any disease or condition other than such addiction; that none of the drugs so dispensed by the defendant was administered to or intended by the defendant to be administered to King by the defendant or any nurse, or person acting under the direction of the defendant; nor were any of the drugs consumed or intended to be consumed by King in the presence of the defendant, but that all of the drugs were put in the possession or control of King with the intention on the part of the defendant that King would use the same by self-administration in divided doses over a period of several days, the amount of each of said drugs dispensed being more

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[1] United States *v.* Behrman.

than sufficient or necessary to satisfy the craving of King therefor if consumed by him all at one time; that King was not in any way restrained or prevented from disposing of the drugs in any manner he saw fit; and that the drugs so dispensed by the defendant were in the form in which said drugs are usually consumed by persons addicted to the habitual use thereof to satisfy their craving therefor, and were adapted for such consumption.

The question is: Do the acts charged in this indictment constitute an offense within the meaning of the statute? As we have seen, the statute contains an exception to the effect that it shall not apply to the dispensing or distribution of such drugs to a patient by a registered physician in the course of his professional practice only, nor to the sale, dispensing, or distribution of the drugs by a dealer to a consumer under a written prescription by a registered physician. The rule applicable to such statutes is that it is enough to charge facts sufficient to show that the accused is not within the exception.—United States *v.* Cook (17 Wall. 168, 173).

The district judge who heard this case was of the opinion that prescriptions in the regular course of practice did not include the indiscriminate doling out of narcotics in such quantity to addicts as charged in the indictment, but out of deference to what he deemed to be the view of a local district judge in another case announced his willingness to follow such opinion until the question could be passed upon by this court, and sustained the demurrer. In our opinion the district judge who heard the case was right in his conclusion and should have overruled the demurrer

Former decisions of this court have held that the purpose of the exception is to confine the distribution of these drugs to the regular and lawful course of professional practice, and that not everything called a prescription is necessarily such.—Webb *v.* United States (249 U. S. 96); Jin Fuey Moy *v.* United States (254 U. S. 189). Of this phase of the act this court said in the Jin Fuey Moy case, page 194:

> Manifestly the phrases "to a patient" and "in the course of his professional practice only" are intended to confine the immunity of a registered physician, in dispensing the narcotic drugs mentioned in the act, strictly within the appropriate bounds of a physician's professional practice, and not to extend it to include a sale by a dealer or a distribution intended to cater to the appetite or satisfy the craving of one addicted to the use of the drug. A "prescription" issued for either of the latter purposes protects neither the physician who issues it nor the dealer who knowingly accepts and fills it.—Webb *v.* United States (249 U. S. 96).

It is enough to sustain an indictment that the offense be described with sufficient clearness to show a violation of law and to enable the accused to know the nature and cause of the accusation and to plead the judgment, if one be rendered, in bar of further prosecution for the same offense. If the offense be a statutory one, and intent or knowledge is not made an element of it, the indictment need not charge such knowledge or intent.—United States *v.* Smith (2 Mason, 143); United States *v.* Miller (Fed. Cas. 15775); United States *v.* Jacoby (Fed. Cas. 15462); United States *v.* Ulrici (Fed. Cas. 16594) [opinion by Miller, circuit justice]; United States *v.* Bayaud (16 Fed. 376, 383–4); United States *v.* Jackson (25 Fed. 548, 550); United States *v.* Guthrie (171 Fed. 528, 531); United States *v.* Balint and Randazzo, this day decided, *ante*, p. ——).

It may be admitted that to prescribe a single dose or even a number of doses may not bring a physician within the penalties of the act; but what is here charged is that the defendant physician by means of prescriptions has enabled one, known by him to be an addict, to obtain from a pharmacist the enormous number of doses contained in 150 grains of heroin, 360 grains of morphine, and 210 grains of cocaine. As shown by Wood's United States Dispensatory, a standard work in general use, the ordinary dose of morphine is one-fifth of a grain, of cocaine one-eighth to one-fourth of a grain, of heroin one-sixteenth to one-eighth of a grain By these standards more than 3,000 ordinary doses were placed in the control of King. Undoubtedly doses may be varied to suit different cases as determined by the judgment of a phy-

sician. But the quantities named in the indictment are charged to have been intrusted to a person known by the phsycian to be an addict without restraint upon him in its administration or disposition by anything more than his own weakened and perverted will. Such so-called prescriptions could only result in the gratification of a diseased appetite for these pernicious drugs or result in an unlawful parting with them to others in violation of the act as heretofore interpreted in this court within the principles laid down in the Webb and Jin Fuey Moy cases, *supra*.

We hold that the acts charged in the indictment constituted an offense within the terms and meaning of the act. The judgment of the District Court to the contrary should be reversed.

Mr. Justice HOLMES, Mr. Justice MCREYNOLDS, and Mr. Justice BRANDEIS, dissenting.

DEATHS DURING WEEK ENDED JULY 29, 1922.

Summary of information received by telegraph from industrial insurance companies for week ended July 29, 1922, and corresponding week, 1921. (From the Weekly Health Index, August 1, 1922, issued by the Bureau of the Census, Department of Commerce.)

	Week ended July 29, 1922.	Corresponding week, 1921.
Policies in force	49,733,524	47,262,257
Number of death claims	7,533	7,261
Death claims per 1,000 policies in force, annual rate	7.9	8.0

Deaths from all causes in certain large cities of the United States during the week ended July 29, 1922, infant mortality, annual death rate, and comparison with corresponding week of 1921. (From the Weekly Health Index, August 1, 1922, issued by the Bureau of the Census, Department of Commerce.)

City.	Estimated population July 1, 1922.	Week ended July 29, 1922.		Annual death rate per 1,000, corresponding week, 1921.	Deaths under 1 year.		Infant mortality rate, week ended July 29, 1922.[2]
		Total deaths.	Death rate.[1]		Week ended July 29, 1922.	Corresponding week, 1921.	
Total	27,860,666	5,529	10.3	11.3	881	1,035	.....
Akron, Ohio	[3] 208,435	19	4.8	4.3	5	4	53
Albany, N. Y	116,223	25	11.2	12.7	1	2	22
Atlanta, Ga	220,047	64	15.2	15.8	10	15	.....
Baltimore, Md	762,222	212	14.5	13.5	63	37	177
Birmingham, Ala	191,017	41	11.2	16.8	3	12	.....
Boston, Mass	764,017	152	10.4	14.0	23	29	62
Bridgeport, Conn	[3] 143,555	33	12.0	8.3	5	4	62
Buffalo, N. Y	528,163	110	10.9	10.7	21	27	83
Cambridge, Mass	110,944	31	14.6	13.2	5	2	91
Camden, N. J	121,915	23	9.8	7.4	0	4	0
Chicago, Ill	2,833,288	494	9.1	10.2	70	92	.....
Cincinnati, Ohio	404,865	100	12.9	12.7	6	20	40
Cleveland, Ohio	854,003	121	7.4	10.7	19	24	49
Columbus, Ohio	253,455	49	10.1	11.7	4	9	42
Dallas, Tex	171,974	32	9.7	12.3	9	4	.....
Dayton, Ohio	161,824	30	9.7	9.9	7	9	119
Denver, Colo	267,591	54	10.5	10.7	6	7	.....
Detroit, Mich	[3] 993,678	183	9.6	9.5	34	51	65
Fall River, Mass	120,790	40	17.3	14.3	8	9	112
Forth Worth, Tex	114,717	28	12.7	.....	5	.....	.....
Grand Rapids, Mich	143,572	16	5.8	10.0	1	5	17
Houston, Tex	150,087	30	10.4	8.7	4	3	.....
Indianapolis, Ind	333,257	90	14.1	10.4	15	7	114
Jersey City, N. J	305,911	54	9.2	12.9	14	28	89
Kansas City, Kans	113,801	29	13.3	11.0	5	3	116
Kansas City, Mo	343,988	90	13.6	15.2	16	22	.....
Los Angeles, Calif	634,866	158	13.0	10.6	20	18	83
Louisville, Ky	236,877	52	11.4	16.6	7	18	76
Lowell, Mass	114,423	30	13.7	15.6	7	11	118

Deaths from all causes in certain large cities of the United States during the week ended July 29, 1922, infant mortality, annual death rate, and comparison with corresponding week of 1921. (*From the Weekly Health Index, August 1, 1922, issued by the Bureau of the Census, Department of Commerce.*)—Continued.

City.	Estimated population July 1, 1922.	Week ended July 29, 1922.		Annual death rate per 1,000, corresponding week, 1921.	Deaths under 1 year.		Infant mortality rate, week ended July 29, 1922.[2]
		Total deaths.	Death rate.[1]		Week ended July 29, 1922.	Corresponding week, 1921.	
Memphis, Tenn	167,862	59	18.3	18.6	12	4	.....
Milwaukee, Wis	476,603	75	8.2	9.0	14	17	68
Minneapolis, Minn	400,970	64	8.3	10.1	5	6	27
Nashville, Tenn	122,832	42	17.8	18.8	7	4	.....
New Bedford, Mass	127,542	17	7.0	10.8	3	6	45
New Haven, Conn	169,987	28	8.6	13.4	3	4	37
New Orleans, La	399,616	130	17.0	13.9	10	12	.....
New York, N. Y	5,839,746	978	8.7	11.1	167	247	65
Newark, N. J	431,792	82	9.9	11.3	16	25	71
Norfolk, Va	124,915	29	12.1	11.2	3	5	53
Oakland, Calif	233,279	42	9.4	10.8	7	2	88
Omaha, Nebr	200,739	52	13.5	9.5	8	4	86
Paterson, N. J	138,521	33	12.4	12.1	5	8	77
Philadelphia, Pa	1,894,500	376	10.3	9.8	62	62	73
Pittsburgh, Pa	607,902	142	12.2	12.2	29	28	93
Portland, Oreg	269,240	49	9.5	7.3	1	5	10
Providence, R. I	241,011	51	11.0	10.2	4	8	32
Richmond, Va	178,365	47	13.7	14.2	12	11	146
Rochester, N. Y	311,548	64	10.7	12.3	10	16	77
St. Louis, Mo	795,008	158	10.4	11.4	11	19	.....
St. Paul, Minn	239,836	48	10.4	8.6	7	3	66
Salt Lake City, Utah	123,918	30	12.6	12.9	6	2	89
San Antonio, Tex	178,056	66	19.3	.....	15	.....	.....
San Francisco, Calif	529,792	106	10.4	12.1	4	7	23
Seattle, Wash	[3]315,312	40	6.6	6.5	5	4	42
Sopkane, Wash	104,445	19	9.5	8.5	4	1	85
Springfield, Mass	140,052	20	7.4	10.0	4	3	60
Toledo, Ohio	230,717	54	10.8	10.5	6	6	59
Trenton, N. J	125,075	37	15.4	17.0	7	7	107
Washington, D. C	[3]437,571	100	11.9	13.6	20	13	115
Wilmington, Del	115,568	25	11.3	17.5	4	2	78
Worcester, Mass	188,449	40	11.1	12.7	9	8	98
Yonkers, N. Y	105,422	22	10.9	8.1	6	3	125
Youngstown, Ohio	144,970	14	5.0	13.8	2	7	26

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births—an annual rate based on deaths under 1 year for the week and estimated births for 1921. Cities left blank are not in the registration area for births.
[3] Enumerated population Jan. 1, 1920.

PREVALENCE OF DISEASE.

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring.

UNITED STATES.

CURRENT STATE SUMMARIES.

Telegraphic Reports for Week Ended August 5, 1922.

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers.

ALABAMA.

	Cases.
Cerebrospinal meningitis	1
Diphtheria	45
Hookworm disease	60
Malaria	31
Pellagra	11
Poliomyelitis	1
Scarlet fever	9
Smallpox	3
Tetanus	1
Tuberculosis	14
Typhoid fever	67
Whooping cough	3

ARKANSAS.

Chicken pox	4
Diphtheria	1
Malaria	184
Measles	7
Pellagra	12
Poliomyelitis	2
Scarlet fever	4
Smallpox	2
Tuberculosis	30
Typhoid fever	31
Whooping cough	26

CALIFORNIA.

Cerebrospinal meningitis—Los Angeles	1
Diphtheria	83
Influenza	3
Lethargic encephalitis:	
San Francisco	1
Santa Paula	1
Measles	5
Poliomyelitis—San Francisco	1
Scarlet fever	28
Smallpox:	
Glendale	11
Scattering	19
Typhoid fever	12

COLORADO.

(Exclusive of Denver.)	Cases.
Chicken pox	1
Diphtheria	18
Measles	3
Mumps	7
Pneumonia	1
Scarlet fever	9
Smallpox	1
Tuberculosis	290
Typhoid fever	15

DELAWARE.

Diphtheria	1
Malaria	3
Tuberculosis	8
Typhoid fever	6

FLORIDA.

Dengue	239
Diphtheria	18
Influenza	56
Malaria	25
Pneumonia	3
Scarlet fever	3
Smallpox	1
Typhoid fever	9

GEORGIA.

Chicken pox	4
Diphtheria	18
Dysentery (bacillary)	1
Hookworm disease	5
Influenza	28
Malaria	61
Paratyphoid fever	1
Pellagra	1
Pneumonia	4
Scarlet fever	6
Septic sore throat	4
Smallpox	1
Tuberculosis (pulmonary)	7
Typhoid fever	57
Whooping cough	33

ILLINOIS.

Diphtheria:	Cases.
Cook County (including Chicago)	100
Chicago	74
Kane County	9
Scattering	96
Influenza	12
Pneumonia	117
Poliomyelitis:	
Boone County	1
Clay County	1
Scarlet fever:	
Cook County (including Chicago)	22
Chicago	15
Henry County	9
Winnebago County	12
Scattering	66
Smallpox	17
Typhoid fever	63
Whooping cough	414

INDIANA.

Diphtheria	24
Rabies in animals—Montgomery County	1
Scarlet fever	27
Smallpox	7
Typhoid fever	28

IOWA.

Cerebrospinal meningitis	2
Diphtheria	18
Scarlet fever	19
Smallpox	4
Typhoid fever	2

KANSAS.

Cerebrospinal meningitis	2
Chicken pox	4
Diphtheria	33
German measles	1
Influenza	3
Measles	4
Mumps	5
Pneumonia	6
Poliomyelitis	1
Scarlet fever	36
Smallpox	6
Tetanus	1
Tuberculosis	77
Typhoid fever	20
Whooping cough	36

LOUISIANA.

Diphtheria	14
Malaria	47
Pellagra	13
Poliomyelitis	1
Scarlet fever	3
Smallpox	3
Typhoid fever	26
Whooping cough	12

MARYLAND.[1]

Cerebrospinal meningitis	1
Chicken pox	4
Diphtheria	16

[1] Week ended Friday.

MARYLAND—continued.

	Cases.
Dysentery	26
Influenza	2
Malaria	20
Measles	39
Mumps	22
Paratyphoid fever	6
Pneumonia (all forms)	17
Scarlet fever	10
Tetanus	1
Tuberculosis	44
Typhoid fever	48
Whooping cough	39

MASSACHUSETTS.

Chicken pox	9
Conjunctivitis (suppurative)	12
Diphtheria	98
Dysentery	3
German measles	1
Hookworm disease	2
Influenza	3
Malaria	1
Measles	111
Mumps	23
Ophthalmia neonatorum	12
Pneumonia (lobar)	22
Poliomyelitis	11
Scarlet fever	58
Septic sore throat	5
Tetanus	1
Tuberculosis (all forms)	118
Typhoid fever	20
Whooping cough	144

MINNESOTA.

Chicken pox	2
Diphtheria	32
Measles	19
Pneumonia	6
Poliomyelitis	1
Scarlet fever	35
Smallpox	11
Tuberculosis	119
Typhoid fever	9
Whooping cough	8

MISSISSIPPI.

Diphtheria	33
Poliomyelitis	1
Scarlet fever	9
Typhoid fever	54

MISSOURI.

Chicken pox	4
Diphtheria	29
Epidemic sore throat	1
Measles	6
Mumps	2
Pneumonia	8
Scarlet fever	13
Smallpox	1
Tuberculosis	41
Typhoid fever	28
Whooping cough	16

MONTANA.

	Cases.
Diphtheria	6
Poliomyelitis	4
Scarlet fever	4
Smallpox	1
Typhoid fever	3

NEBRASKA.

Chicken pox	2
Diphtheria	7
Measles	3
Mumps	2
Poliomyelitis—Merriman	1
Scarlet fever	12
Smallpox	3
Tuberculosis	22
Typhoid fever	3
Whooping cough	10

NEW JERSEY.

Cerebrospinal meningitis	3
Chicken pox	9
Diphtheria	82
Influenza	1
Malaria	5
Measles	110
Pneumonia	29
Poliomyelitis	8
Scarlet fever	33
Trachoma	2
Typhoid fever	16
Whooping cough	117

NEW MEXICO.

Chicken pox	2
Diphtheria	20
Malaria	4
Poliomyelitis	1
Scarlet fever	3
Tuberculosis	15
Typhoid fever	7
Whooping cough	1

NEW YORK.

(Exclusive of New York City.)

Cerebrospinal meningitis	1
Diphtheria	98
Influenza	19
Measles	152
Pneumonia	57
Poliomyelitis	2
Scarlet fever	76
Smallpox	1
Typhoid fever	47
Whooping cough	250

NORTH CAROLINA.

Cerebrospinal meningitis	2
Chicken pox	4
Diphtheria	173
Measles	11
Poliomyelitis	1
Scarlet fever	36
Septic sore throat	4
Smallpox	27
Typhoid fever	110
Whooping cough	146

[1] Deaths.

OREGON.

	Cases.
Chicken pox	2
Diphtheria	10
Mumps	2
Pneumonia	[1] 1
Septic sore throat	1
Smallpox	10
Tetanus	[1] 1
Tuberculosis	[1] 3
Typhoid fever	9
Whooping cough	9

SOUTH DAKOTA.

Anthrax	1
Cerebrospinal meningitis	1
Chicken pox	1
Diphtheria	2
Measles	2
Pneumonia	1
Scarlet fever	7
Smallpox	2
Tetanus	1
Tuberculosis	6
Typhoid fever	1
Whooping cough	1

TEXAS.

Diphtheria	46
Pneumonia	5
Scarlet fever	16
Tuberculosis	102
Typhoid fever	29
Typhus fever—Palestine	[2] 1

WASHINGTON.

Chicken pox	11
Diphtheria	4
Measles	2
Mumps	12
Scarlet fever	6
Smallpox	4
Tuberculosis	25
Typhoid fever	16
Whooping cough	23

WEST VIRGINIA.

Diphtheria	5
Scarlet fever	6
Typhoid fever:	
Huntington	8
Scattering	15

WISCONSIN.

Milwaukee:	
Chicken pox	7
Diphtheria	5
German measles	1
Measles	29
Pneumonia	1
Poliomyelitis	1
Scarlet fever	4
Smallpox	1
Tuberculosis	27
Whooping cough	186
Scattering:	
Chicken pox	11
Diphtheria	16

[2] Occurring in July.

WISCONSIN—continued.

Scattering—Continued.	Cases.
Influenza	2
Measles	27
Ophthalmia neonatorum	1
Pneumonia	3
Poliomyelitis	1
Scarlet fever	37
Smallpox	20
Tuberculosis	41
Typhoid fever	9
Whooping cough	122

WYOMING.

	Cases.
Diphtheria	6
Rocky Mountain spotted or tick fever	4
Tuberculosis	1
Tularæmia—Park County	12
Typhoid fever	4

Delayed Reports for Week Ended July 29, 1922.

DISTRICT OF COLUMBIA.

	Cases.
Chicken pox	3
Diphtheria	2
Measles	12
Scarlet fever	3
Tuberculosis	27
Typhoid fever	7
Whooping cough	12

KENTUCKY.

Chicken pox	1
Diphtheria	10
Measles	12
Pneumonia	1
Scarlet fever:	
Jefferson County	8
Scattering	4
Septic sore throat	1
Smallpox	3
Trachoma	5
Tuberculosis:	
Jefferson County	27
Scattering	4
Typhoid fever:	
Jefferson County	38
Scattering	48
Whooping cough	12

MAINE.

	Cases.
Chicken pox	9
Diphtheria	8
Influenza	4
Lethargic encephalitis	1
Measles	3
Mumps	1
Poliomyelitis	1
Scarlet fever	7
Tuberculosis	4
Typhoid fever	5
Whooping cough	2

MISSOURI.

Chicken pox	5
Diphtheria	28
Epidemic sore throat	3
Measles	6
Mumps	1
Pneumonia	2
Scarlet fever	14
Tetanus	2
Trachoma	1
Tuberculosis	58
Typhoid fever	55
Whooping cough	6

SUMMARY OF CASES REPORTED MONTHLY BY STATES.

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State.	Cerebrospinal meningitis.	Diphtheria.	Influenza.	Malaria.	Measles.	Pellagra.	Poliomyelitis.	Scarlet fever.	Smallpox.	Typhoid fever.
1922.										
Arkansas (June)	.....	9	16	453	25	62	.....	3	18	93
Delaware (July)	.....	10	.....	5	4	.....	1	12	.....	23
Massachusetts (July)	3	382	2	8	1,275	1	23	226	.....	75
Pennsylvania (June)	7	743	.....	.....	5,103	1	1	685	.....	207

PLAGUE (RODENT).

California.

Five ground squirrels (*Citellus beecheyi*) shot near Dublin, Alameda County, Calif., July 8, 1922, have been found to be plague-infected. Dublin is located about 25 miles from Oakland and was reported to be the place of origin of a recent case of human plague occurring in Alameda County (see Public Health Reports, July 7, 1922, p. 1658).

TYPHUS FEVER.

Mobile, Ala.

Under date of August 3, 1922, one case of typhus fever, confirmed by the Weil-Felix reaction, was reported in Mobile, Ala. The source of the case was not determined.

Milford, Del.

One case of typhus fever was reported in Milford, Del., for the week ended July 15, 1922. No history of exposure was obtained.

CITY REPORTS FOR WEEK ENDED JULY 22, 1922.

ANTHRAX.

City.	Cases.	Deaths.
Illinois:		
Alton	1	1
Chicago	1	.....

CEREBROSPINAL MENINGITIS.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended July 22, 1922.		City.	Median for previous years.	Week ended July 22, 1922.	
		Cases.	Deaths.			Cases.	Deaths.
California:				Missouri:			
Riverside	0	1	1	Independence	0	.....	1
San Francisco	0	1	.....	New Jersey:			
Connecticut:				Union	0	1	.....
Bridgeport	0	1	1	New York:			
Derby	0	.....	1	New York	7	5	4
Illinois:				Oklahoma:			
Chicago	2	2	1	Tulsa	0	.....	1
Kansas:				Texas:			
Wichita	0	1	1	Dallas	0	1	1
Kentucky:				Virginia:			
Louisville	0	1	1	Norfolk	0	1	.....
Maryland:				West Virginia:			
Baltimore	1	2	.....	Huntington	0	.....	1
Michigan:							
Detroit	1	2	1				

DIPHTHERIA.

See p. 1965; also Telegraphic weekly reports by States, p. 1956, and Monthly summaries by States, p. 1959.

CITY REPORTS FOR WEEK ENDED JULY 22, 1922—Continued.

INFLUENZA.

City.	Cases.		Deaths, week ended July 22, 1922.	City.	Cases.		Deaths, week ended July 22, 1922.
	Week ended July 23, 1921.	Week ended July 22, 1922.			Week ended July 23, 1921.	Week ended July 22, 1922.	
California:				Massachusetts:			
Los Angeles	1	2		Boston		1	1
San Francisco	2	3		New Jersey:			
Florida:				Jersey City			1
Tampa		2		Newark		3	
Georgia:				New York:			
Atlanta	1			New York	4	3	2
Illinois:				Oklahoma:			
Chicago	1			Oklahoma			1
Louisiana:				Pennsylvania:			
New Orleans		1	1	Philadelphia		1	
Maryland:				Tennessee:			
Baltimore	6		1	Nashville			1

LEPROSY.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
California:			New York:		
Sacramento	1		New York	1	
Illinois:					
Chicago	1	1			

MALARIA.

Alabama:			Louisiana:		
Birmingham	1		New Orleans	2	1
Mobile		1	Maryland:		
Arkansas:			Baltimore	1	
Little Rock	4		New Jersey:		
California:			Newark	2	
Bakersfield	1	1	New York:		
Florida:			New York	1	
Tampa	4		Ohio:		
Georgia:			Cleveland	1	
Albany	3		South Carolina:		
Augusta	20		Charleston		1
Brunswick	12		Tennessee:		
Macon	6		Memphis	21	1
Rome	2		Texas:		
Savannah	2		Dallas	5	
Illinois:			Virginia:		
Alton	1		Norfolk	2	
Chicago	1				
Missouri:					
East St. Louis	1				

MEASLES.

See p. 1965; also Telegraphic weekly reports from States, p. 1956, and Monthly summaries by States, p. 1959.

PELLAGRA.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Colorado:			Texas:		
Denver		1	Dallas	2	1
District of Columbia:			Fort Worth	1	1
Washington	1	1	Galveston	1	1
Georgia:			Houston		1
Atlanta		1	Virginia:		
Augusta	1	1	Norfolk		2
South Carolina:					
Charleston					
Greenville		2			

CITY REPORTS FOR WEEK ENDED JULY 22, 1922—Continued.

PNEUMONIA (ALL FORMS).

City.	Cases.	Deaths.
Alabama:		
Birmingham		3
California:		
Alameda		1
Long Beach	1	1
Los Angeles	6	4
Oakland	2	1
Pasadena		1
Riverside	1	1
Sacramento		2
San Diego	3	3
San Francisco		7
Santa Ana	1	
Colorado:		
Denver		3
Connecticut:		
Hartford	1	
New Haven		2
District of Columbia:		
Washington		5
Florida:		
Tampa	1	1
Georgia:		
Atlanta	2	2
Augusta		1
Illinois:		
Aurora		1
Chicago	58	18
Mattoon		1
Peoria		2
Rockford		2
Springfield		1
Kansas:		
Kansas City	1	
Wichita	1	
Kentucky:		
Covington		5
Louisville	2	1
Louisiana:		
New Orleans		2
Maine:		
Bangor	1	
Biddeford		1
Maryland:		
Baltimore	16	6
Massachusetts:		
Arlington	1	1
Boston	7	8
Brookline	1	1
Cambridge	1	1
Haverhill	1	
Holyoke		1
Lawrence	1	
Leominster		1
Lynn	1	
Medford		1
North Attleboro		1
Pittsfield		2
Taunton		1
Worcester		3
Michigan:		
Detroit	6	3
Flint	1	
Grand Rapids	2	1
Hamtramck	1	
Highland Park	2	1
Holland		1
Kalamazoo		1
Marquette	1	
Saginaw		1
Minnesota:		
Duluth	1	
Hibbing		1
Minneapolis		2
Missouri:		
Kansas City		2
St. Joseph		1
Montana:		
Billings		1
Butte		2
Nebraska:		
Lincoln		1
Omaha		3
Nevada:		
Reno		1
New Jersey:		
Atlantic City	1	
Bloomfield	1	
Clifton	1	
East Orange	2	
Garfield		1
Hoboken		1
Jersey City		3
Kearny	1	
Newark	9	4
Orange	1	
Passaic		1
Plainfield	3	2
Trenton	6	1
New York:		
Albany	3	
Buffalo		8
Cortland	1	
Elmira	4	2
Little Falls		1
Newburgh		1
New York	89	52
Niagara Falls		1
North Tonawanda	1	
Rochester	7	1
Troy		1
Watertown		1
White Plains	1	
North Carolina:		
Winston-Salem		1
Ohio:		
Barberton		2
Cincinnati		6
Cleveland	9	6
Columbus	1	5
East Cleveland	1	
Lakewood		1
Niles		1
Norwood		1
Springfield		1
Toledo		3
Youngstown		2
Oregon :		
Portland		4
Pennsylvania:		
Philadelphia	31	22
Rhode Island:		
Pawtucket		1
Providence		3
South Carolina:		
Charleston		2
Greenville		2
Tennessee:		
Memphis		7
Nashville		2
Texas:		
Dallas	1	
Fort Worth		1
Houston		2
Utah:		
Salt Lake City		2
Virginia:		
Norfolk		1
Portsmouth		1
Richmond		4
Wisconsin::		
Janesville		1
Milwaukee	1	
Racine		1

CITY REPORTS FOR WEEK ENDED JULY 22, 1922—Continued.

POLIOMYELITIS (INFANTILE PARALYSIS).

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended July 22, 1922.	
		Cases.	Deaths.
Alabama:			
Birmingham	0	1	.....
California:			
Los Angeles	0	1	.....
Maine:			
Waterville	0	1	.....
Maryland:			
Baltimore	2	1	.....
Massachusetts:			
Fall River	0	1	.....
Haverhill	0	1	1
New Bedford	0	2	1
Michigan:			
Pontiac	0	2	.....
Montana:			
Billings	0	1	.....
New Jersey:			
Newark	0	1	.....
New York:			
Buffalo	0	1	.....
Elmira	0	1	.....
New York	5	1	.....
Pennsylvania:			
Philadelphia	1	2	.....
Rhode Island:			
Newport	0	1	.....
Providence	0	6	1
Texas:			
Fort Worth	0	1	1
Virginia:			
Petersburg	.....	1	1

RABIES IN ANIMALS.

City.	Cases.	City.	Cases.
California:		Kentucky:	
Los Angeles	8	Louisville	4
Georgia:		Tennessee:	
Savannah	1	Memphis	1

SCARLET FEVER.

See p. 1965; also Telegraphic weekly reports from States, p. 1956, and Monthly summaries by States, p. 1959.

SMALLPOX.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended July 22, 1922.	
		Cases.	Deaths.
Alabama:			
Mobile	0	1	.....
California:			
Los Angeles	0	2	1
San Francisco	1	1	.....
Colorado:			
Denver	3	2	.....
Georgia:			
Augusta	.....	2	.....
Illinois:			
Peoria	0	1	.....
Indiana:			
Frankfort	0	1	.....
Indianapolis	0	1	.....
Iowa:			
Burlington	0	2	.....
Dubuque	0	1	.....
Mason City	0	1	.....
Kansas:			
Hutchinson	0	1	.....
Kansas City	0	1	.....
Michigan:			
Detroit	5	2	.....
Flint	0	2	.....
Grand Rapids	0	1	.....
Missouri:			
Kansas City	2	1	.....
Montana:			
Missoula	0	3	.....
Nebraska:			
Omaha	4	1	.....
New York:			
Watertown	0	1	.....
North Carolina:			
Durham	0	8	.....
Winston-Salem	0	1	.....
Ohio:			
Springfield	0	1	.....
Oregon:			
Portland	6	5	.....
Wisconsin:			
Ashland	0	1	.....
Madison	0	1	.....
Superior	2	14	.....
Wausau	0	1	.....

CITY REPORTS FOR WEEK ENDED JULY 22, 1922—Continued.

TETANUS.

City.	Cases.	Deaths.
California:		
Los Angeles	1	2
Connecticut:		
Hartford	1	1
Illinois:		
Chicago	1	.....
Maryland:		
Baltimore	.....	1
Michigan:		
Detroit	.....	1
Minnesota:		
Minneapolis	.....	3
Missouri:		
St. Louis	1	2
New Jersey:		
Newark	1	.....
New York:		
New York	.....	1
Rochester	1	1
White Plains	.....	1
Ohio:		
Cleveland	.....	2
Lorain	1	1
West Virginia:		
Wheeling	1	.....

TUBERCULOSIS.

See p. 1965; also Telegraphic weekly reports from States, p. 1956.

TYPHOID FEVER.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended July 22, 1922.	
		Cases.	Deaths.
Alabama:			
Birmingham	10	7	2
Montgomery	1	1	.....
Arkansas:			
Little Rock	2	1	.....
North Little Rock	1	3	.....
California:			
Los Angeles	6	5	1
Oakland	2	3	.....
Richmond	0	1	.....
Sacramento	2	1	.....
San Francisco	5	4	2
Stockton	1	6	2
Colorado:			
Denver	1	2	.....
Pueblo	0	2	.....
Connecticut:			
Hartford	0	.....	1
Milford	0	1	.....
New Haven	0	7	1
Norwich	0	1	.....
Delaware:			
Wilmington	1	1	1
District of Columbia:			
Washington	5	5	.....
Florida:			
Tampa	0	.....	1
Georgia:			
Albany	.....	1	.....
Atlanta	2	2	2
Augusta	.....	1	.....
Brunswick	0	3	.....
Macon	0	4	.....
Rome	3	3	.....
Savannah	1	2	.....
Illinois:			
Aurora	0	1	.....
Chicago	5	2	1
Rock Island	0	2	.....
Indiana:			
Huntington	0	1	.....
Indianapolis	3	1	1
Kokomo	0	1	.....
Muncie	0	1	.....
Terre Haute	0	1	.....
Iowa:			
Dubuque	0	.....	1
Marshalltown	0	1	.....
Kansas:			
Atchison	0	2	1
Kansas City	0	1	.....
Kentucky:			
Lexington	0	1	.....
Louisville	9	7	1
Owensboro	.....	3	.....
Paducah	0	3	.....
Louisiana:			
New Orleans	6	4	.....
Maine:			
Lewiston	0	1	.....
Maryland:			
Baltimore	9	4	1
Cumberland	2	1	.....
Massachusetts:			
Boston	4	3	.....
Haverhill	0	.....	1
Melrose	0	1	.....
New Bedford	1	2	.....
North Adams	0	1	.....
Peabody	0	1	.....
Somerville	0	3	1
Taunton	0	1	.....
Westfield	0	1	.....
Michigan:			
Detroit	8	3	1
Flint	1	1	.....
Grand Rapids	0	1	.....
Kalamazoo	0	1	.....
Pontiac	0	1	.....
Saginaw	0	1	.....
Minnesota:			
Duluth	1	1	.....
Minneapolis	1	2	1
St. Paul	2	1	.....
Missouri:			
Kansas City	3	8	1
St. Joseph	1	1	.....
St. Louis	8	7	1
Montana:			
Great Falls	0	1	.....
Missoula	0	.....	1

CITY REPORTS FOR WEEK ENDED JULY 22, 1922—Continued.

TYPHOID FEVER—Continued.

City.	Median for previous years.	Week ended July 22, 1922. Cases.	Deaths.
Nebraska:			
Lincoln	0	1	.....
New Hampshire:			
Dover	0	.....	1
New Jersey:			
Clifton	0	1	.....
Jersey City	1	1	.....
Newark	1	3	.....
Passaic	0	1	.....
Paterson	0	1	.....
Plainfield	0	1	.....
Trenton	1	1	.....
West Orange	0	1	.....
New York:			
Albany	1	1	.....
Buffalo	1	4	3
Elmira	0	4	.....
Glens Falls	0	1	.....
Hudson	0	1	1
New York	31	23	3
Poughkeepsie	1	1	.....
Troy	1	1	.....
Watertown	0	3	1
North Carolina:			
Durham	2	1	.....
Raleigh	0	3	.....
Winston-Salem	6	4	.....
Ohio:			
Bucyrus	0	3	.....
Cincinnati	2	3	.....
Cleveland	1	4	.....
Columbus	2	1	.....
Kenmore	0	1	.....
Springfield	0	1	.....
Toledo	1	2	.....
Oklahoma:			
Oklahoma	5	3	.....
Tulsa	5	4	.....
Pennsylvania:			
Allentown	0	3	.....
Bethlehem	0	1	.....
Canonsburg	9	1	.....
Pennsylvania—Contd.			
Coatesville	0	1	.....
Lebanon	0	1	.....
New Castle	0	3	.....
Philadelphia	12	6	1
Pittsburgh	2	5	.....
York	1	2	.....
South Carolina:			
Charleston	4	2	2
Columbia	1	1	.....
Greenville	1	2	.....
Tennessee:			
Chattanooga	0	2	.....
Knoxville	10	18	.....
Memphis	2	9	1
Nashville	13	6	.....
Texas:			
Dallas	4	5	2
Fort Worth	1	2	.....
Houston	1	2	1
Waco	1	.....	1
Utah:			
Salt Lake City	1	1	.....
Virginia:			
Alexandria	0	1	.....
Danville	2	4	.....
Lynchburg	2	2	.....
Norfolk	4	3	.....
Portsmouth	2	3	.....
Richmond	3	1	.....
Roanoke	2	3	1
Washington:			
Spokane	0	1	.....
Tacoma	0	1	.....
West Virginia:			
Bluefield	1	3	.....
Huntington	0	1	.....
Wheeling	1	.....	1
Wisconsin:			
Oshkosh	0	1	.....
Stevens Point	.....	1	.....

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria. Cases.	Deaths.	Measles. Cases.	Deaths.	Scarlet fever. Cases.	Deaths.	Tuberculosis. Cases.	Deaths.
Alabama:										
Birmingham	178,270	45	6	.....	2	.....	1	.....	4	7
Mobile	60,151	16	.....	.....	.....	.....	.....	.....	.....	.....
Montgomery	43,464	16	2	.....	.....	.....	1	.....	.....	.....
Arkansas:										
Fort Smith	28,811	8	.....	.....	1	.....	.....	.....	.....	.....
Hot Springs	11,695	4	.....	.....	.....	.....	.....	.....	.....	.....
North Little Rock	14,048	.....	.....	.....	.....	.....	.....	.....	1	.....
California:										
Alameda	28,806	11	3	.....	.....	.....	1	.....	.....	1
Bakersfield	18,638	7	.....	1	.....	.....	.....	.....	.....	1
Long Beach	55,593	14	1	.....	1	.....	.....	.....	.....	1
Los Angeles	576,673	148	34	1	3	.....	10	.....	30	21
Oakland	216,361	37	2	.....	.....	.....	4	.....	9	4
Pasadena	45,354	12	.....	.....	3	.....	.....	.....	.....	3
Richmond	16,843	4	.....	.....	.....	.....	.....	.....	.....	.....
Riverside	19,341	6	.....	.....	.....	.....	.....	.....	.....	1
Sacramento	65,857	12	3	.....	1	.....	1	.....	.....	1

CITY REPORTS FOR WEEK ENDED JULY 22, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
California—Continued.										
San Diego	74,683	24	3	.....	1	.....	2	.....	2	2
San Francisco	508,410	100	9	1	2	.....	4	.....	30	8
Santa Ana	15,485	4	2	.....	.....	.....	.....	.....	2	.....
Santa Barbara	19,441	3	.....	.....	.....	.....	.....	.....	.....	.....
Santa Cruz	10,917	7	.....	.....	.....	.....	.....	.....	.....	1
Stockton	40,296	10	1	.....	.....	.....	1	.....	.....	.....
Colorado:										
Denver	256,369	68	14	1	1	.....	6	.....	.....	8
Pueblo	42,908	12	.....	.....	.....	.....	.....	.....	.....	3
Connecticut:										
Bridgeport	143,538	20	1	.....	8	.....	2	.....	6	4
Bristol	20,620	2	.....	.....	2	.....	.....	.....	.....	2
Derby (town)	11,238	2	.....	.....	.....	.....	.....	.....	.....	.....
Fairfield	11,475	.....	.....	.....	2	.....	.....	.....	.....	.....
Greenwich	22,123	.....	.....	.....	1	.....	1	.....	1	.....
Hartford	138,036	30	5	1	2	.....	.....	.....	8	1
Manchester	18,370	5	.....	.....	.....	.....	.....	.....	.....	.....
Milford (town)	10,193	3	.....	.....	1	.....	.....	.....	.....	.....
New Haven	162,519	33	1	.....	12	.....	2	.....	.....	2
Norwich (town)	29,685	5	.....	.....	.....	.....	.....	.....	.....	1
Stonington (town)	10,236	2	.....	.....	1	.....	.....	.....	.....	.....
Delaware:										
Wilmington	110,168	26	.....	1	.....	.....	1	.....	.....	3
District of Columbia:										
Washington	437,571	106	12	1	14	.....	1	.....	33	10
Florida:										
Tampa	51,252	13	.....	.....	.....	.....	.....	.....	.....	.....
Georgia:										
Atlanta	200,616	51	3	1	.....	.....	3	.....	4	6
Augusta	52,548	18	.....	.....	.....	.....	.....	.....	1	.....
Brunswick	14,413	4	.....	.....	.....	.....	.....	.....	.....	1
Macon	52,995	.....	.....	.....	.....	.....	1	.....	1	.....
Rome	13,252	.....	2	.....	.....	.....	.....	.....	.....	.....
Savannah	83,252	18	2	.....	.....	.....	.....	.....	.....	3
Valdosta	10,783	7	.....	.....	.....	.....	.....	.....	.....	1
Idaho:										
Boise	21,393	5	.....	.....	.....	.....	.....	.....	.....	.....
Illinois:										
Alton	24,682	6	1	.....	.....	.....	1	.....	.....	.....
Aurora	36,397	10	8	1	1	.....	.....	.....	.....	1
Bloomington	28,725	6	1	.....	.....	.....	.....	.....	4	.....
Centralia	12,491	5	.....	.....	.....	.....	.....	.....	.....	.....
Champaign	15,873	.....	1	.....	.....	.....	.....	.....	.....	.....
Chicago	2,701,705	501	79	3	194	3	31	.....	295	50
Cicero	44,995	1	2	.....	2	.....	.....	.....	.....	.....
Decatur	43,818	3	1	.....	.....	.....	.....	.....	.....	1
East St. Louis	66,740	21	.....	.....	.....	.....	.....	.....	2	1
Elgin	27,454	7	.....	.....	2	.....	.....	.....	2	.....
Evanston	37,215	8	.....	.....	3	.....	.....	.....	.....	.....
Forest Park	10,768	.....	1	.....	2	.....	.....	.....	.....	.....
Freeport	19,669	5	.....	.....	.....	.....	.....	.....	.....	.....
Galesburg	23,834	9	.....	.....	.....	.....	.....	.....	.....	1
Mattoon	13,552	3	.....	.....	.....	.....	.....	.....	.....	.....
Oak Park	39,830	10	.....	.....	4	.....	.....	.....	.....	.....
Peoria	76,121	26	1	.....	.....	.....	2	.....	.....	.....
Quincy	35,978	8	.....	.....	.....	.....	2	.....	1	1
Rockford	65,651	9	.....	.....	8	.....	2	.....	.....	2
Rock Island	35,177	3	1	.....	.....	.....	.....	.....	1	.....
Springfield	59,183	12	.....	.....	1	.....	1	.....	2	1
Indiana:										
Anderson	29,767	.....	1	.....	.....	.....	.....	.....	.....	.....
Clinton	10,962	3	.....	.....	.....	.....	.....	.....	.....	.....
Crawfordsville	10,139	1	2	.....	.....	.....	.....	.....	.....	.....
East Chicago	35,967	4	4	.....	.....	.....	.....	.....	.....	2
Frankfort	11,585	1	.....	.....	.....	.....	.....	.....	.....	.....
Gary	55,378	14	.....	.....	.....	.....	.....	.....	.....	2
Hammond	36,004	7	1	1	5	.....	.....	.....	.....	.....
Huntington	14,000	2	.....	.....	.....	.....	.....	.....	.....	.....
Indianapolis	314,194	72	4	.....	13	.....	6	.....	.....	5
Kokomo	30,067	3	.....	.....	.....	.....	.....	.....	.....	.....
La Fayette	22,486	3	.....	.....	.....	.....	.....	.....	.....	1
Logansport	21,626	3	.....	.....	.....	.....	1	.....	.....	.....
Mishawaka	15,195	3	.....	.....	.....	.....	.....	.....	.....	.....

CITY REPORTS FOR WEEK ENDED JULY 22, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Indiana—Continued.										
Muncie	36,624	5								1
Newcastle	14,458	3							1	1
South Bend	70,983	7			12		1		5	
Terre Haute	66,083	20								1
Iowa:										
Burlington	24,057						1		2	1
Clinton	24,151		3							
Council Bluffs	36,162	9	1				2			1
Des Moines	126,468		4				10			
Dubuque	39,141		1		1		1			
Marshalltown	15,731						1			
Mason City	20,065	3					1			
Muscatine	16,068	7								
Ottumwa	23,003						1			
Sioux City	71,227		4							
Waterloo	36,230						3			
Kansas:										
Coffeyville	13,452	1							6	
Hutchinson	23,298		1						1	
Kansas City	101,177		3		4		1		4	
Lawrence	12,456	6					2		5	
Leavenworth	16,912		3				1			
Parsons	16,028	4							1	
Salina	15,085	2			1		4			
Topeka	50,022	11	1						5	1
Wichita	72,128	12	1		2		1			
Kentucky:										
Covington	57,121	21	2		7					
Lexington	41,534	16	3		2					2
Louisville	234,891	60	2				2		14	6
Owensboro	17,424								1	
Paducah	24,735								1	
Louisiana:										
New Orleans	387,219	115	6						29	19
Maine:										
Auburn	16,985	6								1
Bangor	25,978		1							
Bath	14,731	1								
Biddeford	18,008	1			1		1			
Lewiston	31,791	15								
Portland	69,272	22	2							
Sanford	10,691	3								
Waterville	13,351		1				1			
Maryland:										
Baltimore	733,826	175	12		39	1	6	1	30	14
Cumberland	29,837	13					1		1	1
Massachusetts:										
Adams	12,967	2					1			
Arlington	18,665	4			4				2	
Attleboro	19,731	3								1
Belmont	10,749	2								
Beverly	22,561	5	1		3					
Boston	748,060	174	36	1	58	2	20		42	13
Braintree	10,580	3			2				1	1
Brookline	37,748	6			5					
Cambridge	109,694	17	4		10				5	1
Chelsea	43,184	13	1		6		2		1	
Chicopee	36,214	7	3	2						1
Clinton	12,979	2							1	
Danvers	11,108		3						1	
Dedham	10,792	2			1					1
Everett	40,120	6			3				3	
Fall River	120,485	26	1		12		3		9	4
Framingham	17,033	1			2		1			
Greenfield	15,462	2								
Haverhill	53,884	19	1						1	
Holyoke	60,203	11	1							
Lawrence	94,270	18			2		1		2	1
Leominster	19,744	5			1					
Lowell	112,479	27	1		1		1		6	2
Lynn	99,148	20	4		2		2		2	1
Malden	49,103	5	6		4	1	2		2	
Medford	39,038	6	1	1	1		2			
Melrose	18,204	2			4					

CITY REPORTS FOR WEEK ENDED JULY 22, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Massachusetts—Continued.										
Methuen	15,189	1							1	
Natick	10,907								1	
New Bedford	121,217	12	1		1				2	1
Newburyport	15,618	6			1					
Newton	46,054	4			2				4	
North Adams	22,282								2	
Northampton	21,951	9			9				2	
Peabody	19,552	4	2							
Pittsfield	41,751	12					1		3	
Plymouth	13,045	4								
Quincy	47,876	7								1
Salem	42,529	6	6		4					
Saugus	10,874	3							2	
Somerville	93,091	15			2		1			1
Southbridge	14,245	1								
Springfield	129,563	21	1		9				6	2
Taunton	37,137	15	1						1	
Wakefield	13,025	3			7					
Waltham	30,915	3	1		1		1			
Watertown	21,457	2			1					
Webster	13,258	1								
West Springfield	13,443	3								
Westfield	18,604	2								
Winthrop	15,455				1				1	
Woburn	16,574	3								
Worcester	179,754	39	2				3		7	4
Michigan:										
Benton Harbor	12,233	2								
Detroit	993,739	181	13	2	16	2	30		31	12
Flint	91,599	18	2		4		3			2
Grand Rapids	137,634	34	2				5			8
Hamtramck	48,615						2		2	
Highland Park	46,499	10					4			1
Holland	12,166	1	1				3			
Kalamazoo	48,858	18	4				2		1	
Marquette	12,718	1	1							
Pontiac	34,273	6			3					
Port Huron	25,944	7			10					
Saginaw	61,903	13		1	1		2		2	
Sault Ste. Marie	12,096	5								1
Minnesota:										
Duluth	98,917	7	1		4		1			
Hibbing	15,089	2					1			
Minneapolis	380,582	69	7		11		6		15	4
St. Cloud	15,873						1			
St. Paul	234,595	41	8		6		18		11	3
Virginia	14,022								1	
Missouri:										
Independence	11,686	7								
Kansas City	324,410	59	1		3		1		8	8
Saint Joseph	77,939	27	1							2
Saint Louis	772,897	147	12	1	2		3		38	9
Springfield	39,631	12								1
Montana:										
Billings	15,100	4								
Butte	41,611	7								
Great Falls	24,121	5	1		1					
Missoula	12,668	11							1	1
Nebraska:										
Lincoln	54,934	12			1				1	
Omaha	191,601	39	4	1	3					2
Nevada:										
Reno	12,016	5								
New Hampshire:										
Berlin	16,104	3							1	
Concord	22,167	13								1
Dover	13,029	4								
Keene	11,210	1			1				1	
New Jersey:										
Asbury Park	12,400	3								
Atlantic City	50,682	17			2		1		1	1
Bayonne	76,754		2		2				2	
Belleville	15,960						1			
Bloomfield	22,019	2			2					

CITY REPORTS FOR WEEK ENDED JULY 22, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
New Jersey—Continued.										
Clifton	26,470	1	.....	.....	1	.....	1	.....	.....	.....
East Orange	50,710	5	2	.....	2	.....	.....	.....	3	1
Englewood	11,627	.....	2	.....	.....	.....	.....	.....	.....	.....
Garfield	19,381	2	.....	.....	2	.....	.....	.....	1	.....
Hackensack	17 667	4	.....	.....	.....	.....	.....	.....	2	.....
Hoboken	68 166	14	3	.....	.....	.....	.....	.....	2	1
Jersey City	297 864	62	13	.....	1	.....	3	1	10	6
Kearny	26 724	4	1	.....	1	.....	1	.....	.....	2
Morristown	12,548	4	.....	.....	8	.....	.....	.....	1	1
Newark	414,216	81	6	.....	30	.....	4	.....	19	5
Orange	33,268	3	1	.....	6	.....	2	.....	1	.....
Passaic	63,824	12	.....	.....	4	.....	.....	.....	4	.....
Paterson	135,866	.....	7	.....	7	.....	.....	.....	.....	.....
Perth Amboy	41,707	5	1	.....	1	.....	.....	.....	3	.....
Phillipsburg	16,923	4	.....	.....	.....	.....	.....	.....	.....	.....
Plainfield	27,700	9	2	2	11	.....	2	.....	.....	1
Rahway	11,042	5	.....	.....	.....	.....	.....	.....	2	.....
Summit	10,174	1	.....	.....	2	.....	.....	.....	.....	.....
Trenton	119,289	32	4	.....	13	.....	.....	.....	.....	7
West Hoboken	40,068	3	.....	.....	.....	.....	.....	.....	.....	1
West New York	29,926	2	1	.....	.....	.....	.....	.....	1	.....
West Orange	15,573	1	.....	.....	.....	.....	.....	.....	1	.....
New Mexico:										
Albuquerque	15,157	8	8	3	.....	.....	1	.....	5	.....
New York:										
Albany	113,344	.....	4	.....	.....	.....	.....	.....	3	.....
Buffalo	506,775	21	.....	1	5	.....	7	.....	26	10
Cohoes	22,987	12	.....	.....	.....	.....	.....	.....	.....	.....
Cortland	13,294	3	.....	.....	8	.....	.....	.....	.....	.....
Elmira	45,305	.....	1	.....	1	.....	1	.....	.....	.....
Glens Falls	16,638	3	1	.....	.....	.....	.....	.....	.....	.....
Hornell	15,025	1	.....	.....	4	.....	.....	.....	.....	.....
Hudson	11,745	6	.....	.....	.....	.....	.....	.....	.....	.....
Ithaca	17,004	5	2	.....	.....	.....	.....	.....	2	.....
Lackawanna	17,918	4	.....	.....	.....	.....	.....	.....	2	.....
Little Falls	13,029	3	.....	.....	.....	.....	.....	.....	1	1
Lockport	21,308	5	.....	.....	.....	.....	.....	.....	2	.....
Newburgh	30,366	11	1	.....	18	.....	.....	.....	.....	.....
New York	5,621,151	1,055	132	7	182	4	51	1	[1] 231	[1] 85
Niagara Falls	50,760	6	4	.....	17	.....	3	.....	.....	.....
North Tonawanda	15,482	1	1	.....	4	.....	1	.....	.....	.....
Olean	20,506	1	.....	.....	.....	.....	.....	.....	.....	.....
Peekskill	15,868	7	.....	.....	15	.....	1	.....	.....	.....
Poughkeepsie	35,000	7	.....	.....	.....	.....	.....	.....	1	1
Rochester	295,750	60	5	3	30	3	.....	.....	4	2
Saratoga Springs	13,181	6	.....	.....	.....	.....	2	.....	2	1
Schenectady	88,723	15	.....	.....	.....	.....	.....	.....	.....	2
Troy	72,013	23	1	.....	1	.....	.....	.....	2	1
Watertown	31,285	5	.....	.....	1	.....	.....	.....	1	.....
White Plains	21,031	4	.....	.....	.....	.....	.....	.....	.....	.....
North Carolina:										
Durham	21,719	6	.....	.....	.....	.....	.....	.....	.....	2
Raleigh	24,418	4	2	1	.....	.....	.....	.....	.....	.....
Rocky Mount	12,742	4	.....	.....	.....	.....	.....	.....	.....	.....
Salisbury	13,884	2	.....	.....	.....	.....	.....	.....	.....	.....
Wilmington	33,372	12	.....	.....	.....	.....	.....	.....	1	.....
Winston-Salem	48,395	9	3	.....	.....	.....	.....	.....	5	.....
North Dakota:										
Fargo	21,961	.....	1	.....	.....	.....	.....	.....	.....	.....
Grand Forks	14,010	.....	2	.....	.....	.....	.....	.....	.....	.....
Ohio:										
Akron	208,435	18	1	.....	5	.....	3	.....	20	.....
Ashtabula	22,082	5	.....	.....	.....	.....	.....	.....	.....	.....
Barberton	18,811	5	.....	.....	.....	.....	1	.....	.....	1
Bucyrus	10,425	3	.....	.....	.....	.....	.....	.....	.....	.....
Cambridge	13,104	2	.....	.....	1	.....	.....	.....	.....	.....
Canton	87,091	8	3	.....	3	.....	.....	.....	.....	.....
Chillicothe	15,831	3	.....	.....	.....	.....	.....	.....	.....	.....
Cincinnati	401,247	76	3	.....	2	.....	4	.....	13	10
Cleveland	796,836	133	18	.....	79	.....	13	.....	38	12
Cleveland Heights	15,235	.....	.....	.....	2	.....	1	.....	.....	.....
Columbus	237,031	52	4	.....	3	.....	1	.....	9	2
Dayton	152,559	35	1	.....	3	.....	.....	.....	.....	.....

[1] Pulmonary tuberculosis only.

CITY REPORTS FOR WEEK ENDED JULY 22, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Ohio—Continued.										
East Cleveland	27,292	4	1		2				1	
Findlay	17,021	6								
Fremont	12,468	1	1							
Hamilton	39,675	10					1			1
Kenmore	12,683				1					
Lakewood	41,732	6					1			
Lancaster	14,706	4	2							
Lima	41,306	14	1						1	
Lorain	37,295								1	
Mansfield	27,824	3	3		1		1			
Martins Ferry	11,634	2	1							
Middletown	23,594	3	1							
Newark	26,718	5	1		1					
Niles	13,080	3	3						1	
Norwood	24,906	4								
Piqua	15,044	7								
Salem	10,305	6			22		1			
Springfield	60,810	13	1		3					1
Steubenville	28,508	12							1	
Toledo	243,109	42	9		40	2	2			4
Youngstown	132,358		5		8		1			3
Zanesville	29,569	6	1				1			
Oklahoma:										
Oklahoma	91,258	17								4
Tulsa	72,075						3			
Oregon:										
Portland	258,288	51	15		2		2		4	3
Pennsylvania:										
Allentown	73,502		1				1		1	
Altoona	60,331						1			
Beaver Falls	12,802				1					
Berwick	12,181				2					
Bethlehem	50,358		4		7					
Braddock	20,879				2					
Canonsburg	10,632				1					
Carlisle	10,916						1			
Chester	58,030				13					
Dubois	13,861		1		1					
Easton	33,813				1					
Erie	93,372		2		1		2		14	
Harrisburg	75,917		4		5		1			
Hazleton	32,277				4					
Johnstown	67,327				4		1		1	
Lancaster	53,150		3				1		3	
McKeesport	45,975								2	
McKee's Rocks	16,713		2							
Meadville	14,568				1					
Monessen	18,179		2							
Mount Carmel	17,469		1							
Norristown	32,319		2						3	
North Braddock	14,928				11					
Old Forge	12,237								2	
Philadelphia	1,823,158	392	28	2	193	4	27	1	73	38
Phoenixville	10,484				1					
Pittsburgh	588,193		18		101		7		20	
Pittston	18,497		1		2					
Pottstown	17,431		1							
Pottsville	21,876		2							
Reading	107,784				25				2	
Scranton	137,783		1		5				1	
Shamokin	21,204				7					
Steelton	13,428		1				2		1	
Tamaqua	12,363				1					
Washington	21,480						1			
Wilkes-Barre	73,833		2				2		2	
Wilkinsburg	24,403				2		1			
York	47,512				2		2			
Rhode Island:										
Cranston	29,407	5			1					1
Newport	30,255	4	2				1			
Pawtucket	64,248	24	1		8					
Providence	237,595	51	4	1	7		1			4

CITY REPORTS FOR WEEK ENDED JULY 22, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Case	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
South Carolina:										
Charleston	67,957	21							2	
Columbia	37,524		2						3	
Greenville	23,127	9	2							1
South Dakota:										
Sioux Falls	25,176	4								
Tennessee:										
Chattanooga	57,895		1				1			
Knoxville	77,818		1		3		2		3	3
Memphis	162,351	80	5						8	5
Nashville	118,342	35	2		1		1		7	2
Texas:										
Beaumont	40,422	7								1
Corpus Christi	10,522	3								
Dallas	158,976	37	3	1	3		1		3	3
Fort Worth	106,482	51	9	3			1		4	2
Galveston	44,255	11	1				1		1	1
Houston	138,076	42	3	1			1			1
Waco	38,500	15	4						1	1
Utah:										
Salt Lake City	118,110	27	1		1		1			2
Vermont:										
Burlington	22,779	5	1		2					
Rutland	14,954	4								
Virginia:										
Alexandria	18,060	3								
Charlottesville	10,688								1	
Danville	21,539	9	7						4	
Lynchburg	29,956	6	1						2	1
Norfolk	115,777		1						3	1
Petersburg	31,002	14							4	1
Portsmouth	54,387	10								1
Richmond	171,667	62	3				2		12	8
Roanoke	50,842	15	11	1			1			1
Washington:										
Seattle	315,652		13				3		10	
Spokane	104,437						1			
Tacoma	96,965		1		1		1		1	
West Virginia:										
Bluefield	15,282	5								1
Clarksburg	27,869	4	1				1		1	
Fairmont	17,851		2				1			
Huntington	50,177	17								2
Parkersburg	20,050	2								
Wheeling	54,322	9	2		1		2		2	
Wisconsin:										
Beloit	21,284	6	1		1		1		1	
Fond du Lac	23,427	2								
Green Bay	31,017						2			
Janesville	18,293	4								
Kenosha	40,472	3	3	1					1	
La Crosse	30,363				11					
Madison	38,378				4				1	
Marinette	13,610								1	
Milwaukee	457,147		6		42		3		18	
Oshkosh	33,162	10							11	2
Racine	58,593	13	2		1		3			
Sheboygan	30,955		3							
Superior	39,624	8								1
Wausau	18,661		1							
West Allis	13,765		1							
Wyoming:										
Cheyenne	13,829	1								

FOREIGN AND INSULAR.

PLAGUE ON VESSEL.

Steamship "Ardeola"—At Liverpool from Las Palmas.

The finding of four plague-infected rats from the steamship *Ardeola* has been reported at Liverpool, England. The *Ardeola* arrived at Liverpool June 26, 1922, from the Canary Islands, having sailed from Las Palmas; date of sailing not stated.

AUSTRALIA.

Importation of Live Stock from Great Britain Prohibited.

Under date of May 31, 1922, the importation into Australia of cattle, sheep, and swine from Great Britain or Ireland was prohibited until October 1, 1922, on account of the presence of foot-and-mouth disease in Great Britain.

BRAZIL.

Rodent Plague—Bahia.

Information has been received showing the presence, during the period from May 7 to June 4, 1922, of rodent plague occurring in a section of the city of Bahia, Brazil. Numerous dead rats were stated to have been found.

CHINA.

Cholera—Shanghai.

Cholera was reported present at Shanghai, China, July 5, 1922, with one case officially reported among the foreign population. On August 2, 1922, cholera was reported prevalent at Shanghai.

Cholera—Tientsin.

Two fatal cases of cholera were reported July 25, 1922, at Tientsin, China, occurring in the foreign concessions.

HAWAII.

Plague-Infected Rat—Hamakua.

A rat trapped at Hamakua Mill Co., Island of Hawaii, July 8, 1922, was found positive for plague, July 14, 1922.

LEEWARD ISLANDS, WEST INDIES.

Smallpox—Domenica.

Information was received under date of August 5, 1922, of the presence of smallpox in the Island of Domenica, Leeward Islands, West Indies.

RUSSIA.

Communicable Diseases—Esthonia—May 1–31, 1922.

Communicable diseases have been reported in Esthonia, Russia, as follows:

May 1-31, 1922.

Disease.	Cases.	Disease.	Cases.
Cerebrospinal meningitis	1	Smallpox	4
Diphtheria	29	Tuberculosis	168
Measles	297	Typhoid fever	32
Scarlet fever	42	Typhus fever	16

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER.

Reports Received During Week Ended August 11, 1922.[1]

The reports contained in the following tables must not be considered as complete or final, either as regards the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Shanghai	July 5	1		Foreign. Aug. 2: Prevalent.
Tientsin	July 25	2	2	In foreign concession.
India				Feb. 26–Mar. 25, 1922: Deaths, 5,273. (Report for week ended Feb. 25, 1922, not received.)
Calcutta	June 18–24	9	9	
Rangoon	June 11–17	12	12	
Siam:				
Bangkok	May 14–27	4	1	
Syria:				
Aleppo	July 2–8			Reported in interior.

PLAGUE.

Brazil:				
Bahia	May 7–June 4			Rodent; occurring in a section of city. Many dead rats found.
Ceylon:				
Colombo	June 11–17	2	1	
China:				
Amoy	June 4–17		34	
Foochow	June 4–10	1		June 17–24, 1922: Present.
Egypt				Jan. 1–June 29, 1922: Cases, 280; deaths, 120.
City—				
Alexandria	June 15–28	7	1	
Port Said	June 18–25	1	4	
Suez	June 15–25	4	4	
Province—				
Assiout	June 15–23	9	4	
Benisouef	June 16–24	13	6	
Fayoum	June 20–29	4	2	
Gharbieh	June 15–26	14	3	
Minieh	June 17–29	20	4	

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received During Week Ended August 11, 1922—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Hawaii:				
Island of Hawaii—				
Hamakua Mill Co	July 8			One plague rat trapped. Found positive July 14.
India				May 28–June 3, 1922: Cases, 320; deaths, 208.
Bombay	May 14–27	29	26	
Calcutta	June 18–24	2	2	
Karachi	do	5	6	
Madras Presidency	do	16	7	
Rangoon	June 11–17	23	21	
Java				Occurring in six Provinces. May 1–31, 1922: Cases, 293; deaths, 310.
Siam:				
Bangkok	May 14–20	2	2	
On vessel:				
S. S. Ardeola	June 25–July 8			Four plague-infected rats found dead. Vessel from Las Palmas, Canary Islands, June 26, 1922.

SMALLPOX.

Brazil:				
Para	June 19–25	2		
Do	July 3–16	28	1	
Rio de Janeiro	June 18–24	5	1	
Do	June 25–July 1	8	1	
Canada:				
Ontario—				
Ottawa	July 16–22	2		
Chile:				
Talcahuano	May 22–June 24	33	19	
China:				
Antung	June 12–18	1		
Chungking	June 11–17			Present.
Hankow	June 25–July 1	1		
Nanking	June 4–17			Do.
Tsingtau	May 29–June 18	3	2	
Dominican Republic:				
San Pedro de Macoris	July 2–8	33	1	In city and district.
Santo Domingo	July 9–15		2	Do.
Finland				June 1–15, 1922: One case.
India				Apr. 28–Mar. 25, 1922: Deaths, 1,642.
Bombay	May 14–27	7	3	
Calcutta	June 18–24	4	4	
Karachi	dó		1	
Madras	do	48	20	
Rangoon	June 11–17	5	5	
Japan:				
Taiwan Island	June 11–20	3		
Yokohama	June 12–25	2	1	
Leeward Islands (West Indies):				
Domenica	Aug. 5			Present.
Mexico:				
Mexico City	June 18–24	28		Including municipalities in Federal district.
Portugal:				
Lisbon	June 19–25		8	
Do	June 26–July 8	11	4	
Russia:				
Esthonia	May 1–31	4		
Spain:				
Barcelona	June 22–28		1	
Do	June 29–July 5		1	
Huelva	Apr. 1–30		2	
Seville	July 1–15		37	
Switzerland:				
Zurich	June 18–24	2		
Do	June 25–July 1	2		
Syria:				
Damascus	June 18–24		2	
Turkey:				
Constantinople	June 25–July 8	5	1	
Yugoslavia:				
Belgrade	June 25–July 1	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received During Week Ended August 11, 1922—Continued.

TYPHUS FEVER.

Place.	Date.	Cases.	Deaths.	Remarks.
Danzig (Free City)	June 4-10	1		
Egypt:				
Alexandria	June 18-24	5	5	
Do	June 25-July 1	4	2	
Cairo	Apr. 9-29	28	18	
Port Said	July 2-8	1		
Germany:				
Coblenz	do	1		
Mexico:				
Mexico City	June 18-24	13		Including municipalities in Federal district.
Palestine:				
Jerusalem	June 27-July 3	1		
Persia:				
Teheran	Mar. 22-Apr. 22		1	
Russia:				
Esthonia	May 1-31	16		

Reports Received from July 1 to August 4, 1922.[1]

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Amoy	May 14-June 10	1	3	
Greece:				
Athens	June 29	1	1	
Saloniki	June 7-17	30	11	At quarantine station, among passengers from vessel carrying Russian refugees.
India:				
Bombay	Apr. 23-29	1	1	
Calcutta	Apr. 23-June 17	527	369	
Madras	May 21-June 17	3	1	
Rangoon	May 7-June 3	80	42	
Philippine Islands:				
Manila	May 21-June 17	7		
Province—				
Batangas	May 26-June 3	1	1	
Bulacan	Apr. 30-May 6	1	1	
Camarines Sur	Mar. 25-Apr. 1	1	1	
Laguna	Apr. 16-22	1		
Mindoro	Apr. 23-29	1		
Pampanga	Apr. 16-May 27	3	3	
Rizal	Apr. 2-May 27	2	1	
Tarlac	May 21-27	1	1	
Poland:				
Rowno	June 18			Present. Among persons repatriated from Russia.
Rumania:				
Crangasi				Locality, suburb of city of Bucharest. Outbreak. To July 15, 10 cases, 6 deaths.
Siam:				
Bangkok	Apr. 30-May 13	4	3	First case stated in soldier from frontier on Dniester River.
Syria:				
Aleppo	May 27-June 3			A few cases in interior.
Do	June 25-July 1			Present in interior.

PLAGUE.

Asia Minor:				
Smyrna	May 28-June 17	3	1	
Brazil:				
Pernambuco	May 7-13	1		
British East Africa:				
Kenya Colony—				
Nairobi	Feb. 1-28	15	15	
Ceylon:				
Colombo	May 6-June 10	9	7	

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to August 4, 1922—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Amoy	May 7–June 3		32	May 20: From 10 to 20 deaths reported daily.
Canton	May 1–31	21	17	
Foochow	May 7–13	4	4	
Hongkong	June 4–17	114	72	
Ecuador:				
Guayaquil	June 1–15			Rats found infected, 16; examined, 3,400.
Egypt				Jan. 1–June 15, 1922: Cases, 197; deaths, 93.
City—				
Alexandria	June 1–12	14	5	
Port Said	June 12	1	1	Septicemic.
Suez	May 24–June 5	3	2	
Province—				
Assiout	May 30–June 12	5	4	Septicemic, 1.
Benisouef	May 26–June 7	3	1	
Fayoum	June 3–6	4	2	
Gharbieh	May 26–June 12	21	9	
Minieh	June 2–12	4	3	
Greece:				
Patras	Apr. 24–May 14		3	
Hawaii:				
Hamakua	June 30–July 4	1	1	At Kalopa Homesteads. Case, Hawaiian.
Paauhau	June 30			One plague rat, trapped at Paauhau Gulch, June 29; found positive, June 30, 1922.
Paauilo	July 7		1	At Pokahea. Japanese.
India				Apr. 23–May 27, 1922: Cases, 5,081; deaths, 3,882.
Bombay	Apr. 23–May 13	110	76	
Calcutta	Apr. 23–June 17	54	52	
Karachi	May 23–June 17	54	49	
Madras Presidency	May 21–June 17	58	29	
Rangoon	May 6–June 10	118	109	
Java				Month of April, 1922: Report of the seven Provinces of Java: Cases, 413; deaths, 495.
East Java—				
Soerabaya	May 7–13	2	2	
Soerakarta—				
Keporen	May 20			Epidemic.
Madagascar:				
Tananarive Province—				
Ankestrina	May 4		1	Native village: disease stated to have been present since about Apr. 27, 1922.
Mesopotamia:				
Bagdad	Apr. 1–30	68	40	
Mexico:				
Vera Cruz	June 30			One plague-infected rat.
Peru				May 1–15, 1922: Cases, 35; deaths, 19.
Philippine Islands:				
Manila	June 3	1	1	From S. S. Taisang from Amoy, China.
Siam:				
Bangkok	Apr. 30–May 13	1	1	
Straits Settlements:				
Singapore	Apr. 30–June 5	7	8	
Union of South Africa:				
Orange Free State—				
Grootkom Farm	May 7–13			One dead plague-infected rodent found. Locality adjoins Trucart's Berg Farm, on which plague-infected mouse was found preceding week.
Rendezvous Ry. Station.	May 14–20			Plague-infected wild rodent found near.
On vessel:				
S. S. Taisang	June 1–3	1	1	At Manila, P. I., from Amoy, China. Patient landed at Manila June 1, 1922. The Taisang was 2½ days en route direct from Amoy.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to August 4, 1922—Continued.

SMALLPOX.

Place.	Date.	Cases.	Deaths.	Remarks.
Arabia:				
Aden	May 7–June 24	69	21	
Asia Minor:				
Smyrna	May 14–June 24	4		In district.
Bolivia:				
La Paz	Mar. 1–Apr. 30	97	16	
Brazil:				
Para	May 29–June 18	6		
Rio de Janeiro	May 14–June 17	43	11	
Sao Paulo	Apr. 10–May 7	2	2	
British East Africa:				
Kenya Colony—				
Dar es Salaam	Apr. 16–May 22	13		
Zanzibar	May 1–31	26	6	
Canada:				
Alberta—				
Calgary	June 18–24	1		
Manitoba—				
Winnipeg	May 6–June 17	3		
New Brunswick—				
Kent County	June 25–July 1	2		
Madawaska County	June 4–17	6		
Ontario—				
North Bay	June 3–17	2		
Ottawa	June 11–July 1	17		
Do	July 2–8	4		
Toronto	June 18–July 1	5		
Ceylon:				
Colombo	May 14–20	1		
Chile:				
Concepcion	Mar. 14–June 5		62	
Quillon				In Concepcion Province; epidemic in May, 1922, with 60 reported cases. To June 5: Epidemic.
San Patricio	May 16–22	13		
Talcahuano	do			Present.
Temuco				Province of Cautin; epidemic, May, 1922.
Valparaiso	Mar. 26–Apr. 22		52	Incomplete; several districts not reporting.
China:				
Amoy	May 7–20			Present.
Antung	May 29–June 4	3		
Chungking	May 28–June 10			Do.
Foochow	May 14–20	1		
Hongkong	May 14–June 17	36	29	
Manchuria—				
Dairen	May 15–June 4	2	1	
Harbin	May 22–28	1		
Nanking	May 7–June 3			Do.
Shanghai	May 22–28	1		Native
Tientsin	May 14–20			Present.
Tsingtau	May 9–15	1	1	
Chosen (Korea):				
Chemulpo	May 1–31	1		
Fusan	do	118	53	
Seoul	do	15	2	
Cuba:				
Antilla	June 18–24	1		Reported for Preston.
Cienfuegos	June 24–July 1	1		
Santiago	June 1–30	3		
Dominican Republic:				
San Pedro de Macoris	May 21–June 24	167	2	City and country. Corrected report.
Do	June 25–July 1	37		
Santo Domingo	June 4–24	3	9	Present with a few cases in city and country; no mortality; June 11–17, 1922.
Do	June 25–July 1	1		July 2–8, 1922: Present in city and country; a few cases.
Egypt:				
Port Said	June 11–17	1		
Fiume	June 13–19	1		
France:				
Paris	June 1–10	1	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to August 4, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Great Britain:				
Sheffield	May 28–June 17	5		
Southampton	June 18–24	2		
Halifax				Outbreak reported under date of June 17, 1922.
Huddersfield				Do.
Greece:				
Saloniki	May 1–21	3		
Syra Island	May 26	12	5	
Haiti:				
Cape Haitien	June 11–17	1		
Plaine du Nord	do			Vicinity of Cape Haitien. Present.
India:				
Bombay	Apr. 23–May 6	14	6	
Calcutta	Apr. 23–June 17	80	63	
Karachi	May 23–June 17	35	8	
Madras	May 14–June 17	159	74	
Rangoon	May 7–June 10	30	9	
Japan:				
Kobe	June 19–25	2		
Yokohama	May 29–June 11	2	1	
Java:				
West Java—				
Batavia	Apr. 28–June 2	9	1	
Luxemburg	June 15–30	1		City and Province.
Malta	May 1–June 15	4		
Mesopotamia:				
Bagdad	Apr. 1–30	3	1	
Mexico:				
Chihuahua	June 22–July 2		1	
Guadalajara	May 1–31	7		
Manzanillo	June 6–25		4	
Do	June 27–July 3	6	1	Estimated cases, 4 to 10.
Mexico City	May 21–June 10	101		Estimated
				Including municipalities in Federal District.
Nogales	July 22	26		State of Sonora.
Peru				May 1–15, 1922: Cases, 5; deaths, 4.
Poland				Mar. 26–May 6, 1922: Cases, 696; deaths, 157.
Portugal:				
Lisbon	May 29–June 18	6		
Do	June 25–July 1		6	Corrected report.
Spain:				
Corunna	June 11–17		1	
Seville	do	36		Week ended June 11; many new cases.
Do	June 19–July 2		35	
Valencia	May 21–27	2	1	
Straits Settlements:				
Singapore	Apr. 30–June 5	11	2	
Switzerland:				
Basel	May 28–June 3	1		
Berne	May 14–20	1		
Zurich	Apr. 23–June 17	7		
Syria:				
Aleppo	June 4–24			Present.
Turkey:				
Constantinople	May 21–June 24	21	6	
Union of South Africa				Apr. 1–30, 1922: Cases, 43; deaths, 6 (colored); white, cases, 23.
Cape Province				Apr. 1–30, 1922: Cases, 13 (colored); white, 3.
Do	May 7–June 3			Outbreaks.
Natal				Apr. 1–30, 1922: Cases, 18; deaths, 6 (colored); white, 20.
Orange Free State	May 7–27			Outbreaks.
Southern Rhodesia	May 11–31	54	1	
Transvaal				Apr. 1–30, 1922: Cases, 12.
Do	May 7–June 3			Outbreaks.
Virgin Islands:				
St. Thomas	June 5–18	1	1	At quarantine. From vessel from Dominican Republic.
Yugoslavia				Sept. 4–24, 1921: Cases, 11; deaths 4.
Serbia				Oct. 23–29, 1921: Cases, 5.
Belgrade	June 11–17	1		
Zagreb	June 4–10	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to August 4, 1922—Continued

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
On vessels:				
S. S. Changsha	May 11	1		At Hongkong, China. Case landed from vessel; patient, intending passenger. Vessel proceeded to Australian ports.
S. S. Comeric	do	1		At sea, en route to Durban, S. A., from Sydney, Australia. (Public Health Reports, June 23, 1922, p. 1555.)
Schr. Fancy Me	May 28			At St. Thomas, Virgin Islands. From San Pedro de Macoris, Dominican Republic. One case removed to quarantine June 5, died, June 18.
S. S. Shelley	Apr. 19	1		At sea en route from Hongkong. Vessel left Hongkong Apr. 17.
S. S. St. Albans	May 18	1		Arrived Thursday Island Quarantine, Australia, Apr. 28, 1922. Case, member of crew; type, confluent hemorrhagic. At Thursday Island quarantine, Australia. Case in person of Chinese steerage passenger. Vessel left Shimonoseki, Japan, for Melbourne via Hongkong and Manila. Left Thursday Island for Australian ports.

TYPHUS FEVER.

Algeria:				
Algiers	May 1–31	16	4	
Oran	June 1–30	3	1	
Asia Minor:				
Smyrna	May 14–June 24	8		City and district. Corrected report.
Austria:				
Vienna	May 7–June 10	3	1	
Bolivia:				
La Paz	Mar. 1–Apr. 30	15	8	
Bulgaria:				
Sofia	May 28–June 17	4		
Chile:				
Concepcion	Apr. 11–May 29		10	
Valparaiso	Apr. 2–22		6	
China:				
Antung	May 15–21	1		
Foochow	May 14–20	1		
Manchuria—				
Harbin	May 8–June 11	4		
Czechoslovakia:				
Prague	June 11–17	1		
Egypt:				
Alexandria	June 4–17	4	1	
Cairo	Mar. 19–Apr. 8	14	10	Relapsing fever, Mar. 26–Apr. 8, 1 case.
Port Said	May 28–June 3	1		
Germany				May 1–6, 1922: Five cases typhus fever at quarantine station of Osternothafen, in persons returning from Russia.
Berlin	Apr. 30–May 6		1	
Königsberg	May 28–June 3	1		
Greece:				
Saloniki	May 1–28	23	1	
Mesopotamia:				
Bagdad	Apr. 1–30	1		
Mexico:				
Mexico City	Apr. 23–June 10	98		Including municipalities in Federal District.
Poland				Mar. 26–Apr. 22, 1922: Cases, 7,155. Apr. 23–May 6, 1922: Cases, 2,811; deaths, 172. Recurrent typhus—Mar. 26–Apr. 22, 1922: Cases, 4,515; deaths, 155. Apr. 23–May 6, 1922: Cases, 1,598; deaths, 34. (Corrected report.)
Warsaw	Apr. 25–May 20	80		Among permanent and transient residents.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to August 4, 1922—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Portugal:				
Oporto	May 4-24	9	4	
Rumania				Apr. 1-May 31, 1922: Cases, 62.
Cities—				
Bucharest	May 1-31	14		
Cerenauti	do	5		
Chisinau	Apr. 1-30	21		
Cluj	May 1-31	18		
Constanza	do	1		
Galata	do	1		
Sulina	do	2		
Provinces—				
Bucovina	Jan. 1-31	35	13	
Chisinau	Apr. 1-30	14		Recurrent typhus: Cases, 7.
Transylvania	Jan. 1-31	16	3	
Russia:				
Esthonia	Apr. 1-30	15		
Lettonia	do	275		Recurrent typhus: Cases, 12.
Spain:				
Seville	May 21-June 3		1	
Madrid	May 1-31		9	
Tunis:				
Tunis	June 4-10	2		
Turkey:				
Constantinople	May 21-June 17	12		
Union of South Africa				Apr. 1-30, 1922: Cases, 355; deaths, 77 (colored); white, 3 cases.
Cape Province				Apr. 1-30, 1922: Cases, 338; deaths, 75 (colored); white, 2 cases.
Do	May 7-13			Outbreaks.
Natal				Apr. 1-30, 1922: Cases, 3; deaths, 1 (colored).
Do	May 28-June 3			Outbreaks.
Orange Free State				Apr. 1-30, 1922: Cases, 12; deaths, 1 (colored); white, 1 case.
Do	May 28-June 3			Outbreaks.
Transvaal				Apr. 1-30, 1922: Cases, 2 (colored).
Do	May 28-June 3			Outbreaks.
Yugoslavia				Aug. 7-13, 1921: 2 new cases. (1921.)
Bosnia-Herzegovina	Aug. 7-13	1		Do.
Croatia-Slavonia	Sept. 4-10	1		Do.
Voivodina	Aug. 7-13	1		
From vessel:				
S. S. Smolensk	June 14	1	1	From Danzig, May 30, 1922. At embarkation detention camp, Southampton, England. Public Health Reports, June 30, 1922, p. 1610.

YELLOW FEVER.

Mexico:				
Tampico	July 27-29	1	1	From Panuco. Patient brought to Tampico on eighth day of illness.